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MODAL DEPENDENCIES OF BEGINNING READERS

by

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A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled "Modal Dependencies of Beginning Readers" submitted by Marilyn Elaine Hiebert in partial fulfilment of the requirements for the degree of Master of Education.

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ABSTRACT

Reading is a process by which a beginning reader reconstructs to some degree, a message encoded in graphic language. In this study graphic language was presented in three modes: graphemically (using printed words), pictorially (using pictures), and graphemically & pictorially (using printed words and pictures). The purpose of the study was to investigate beginning readers' sampling of the information presented in these three modes.

Background literature described reading generally as a communication process. Specifically beginning reading was described as involving the use of instructional materials to facilitate the process. In summary the literature suggested that beginning readers developed dependencies on graphemic and/or pictorial information.

Thirty-six Grade I students were selected from four schools in the Edmonton Public School System. Metropolitan Readiness Test scores and teacher ratings were used to indicate reading potential and achievement. Equal numbers of males and females were designated as high, medium, and low achievement readers.

Three stories from Funny Surprises (Nelson Language Development Reading Program, 1970) formed the basis upon which materials were developed. Each story was changed to contain appropriate graphemic, pictorial, or graphemic & pictorial information. The achievement groups each read a story in each of the three modes. Performance and preference were assessed using questioning procedures that were common to all stories and modes.

Data analyses indicated that high, medium, and low achievement reading groups performed their best when using different modes. High

achievement readers performed best on the graphemic & pictorial mode. Medium achievement readers performed equally well on all three modes. Low achievement readers performed best on the pictorial mode. All groups performed equally well on the pictorial mode, but the high achievement readers performed the best on the graphemic mode, and the low achievement readers performed least well on the graphemic mode.

The preference scores indicated that low and medium achievement reading groups preferred different modes than those upon which they obtained highest performance scores. The high achievement reading group expressed preference for and obtained highest performance scores on the graphemic & pictorial mode.

In light of the findings of the research, conclusions were drawn linking the use of modal information to beginning reader achievement groups. The beginning readers in this study appeared to be progressing developmentally in a qualitative manner from use of pictorial information, then graphemic information, and finally graphemic & pictorial information. Within the developmental progression exemplified by the reading achievement groups, each group appeared to sample degrees of modal information from completely pictorials, to equal sampling of graphemics and pictorials, to sampling selectively from graphemics and pictorials.

The implications of these conclusions are important to many areas of education including teachers of beginning readers, publishers of instructional materials for teaching beginning reading, and educators who are concerned with children learning to read.

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Chapter I

INTRODUCTION

There is a sad little boy sitting in his desk. He is seven years old and a hard worker in Grade I. In spite of his best efforts he has not learned to read. All indications are that he is ready to learn to read. When he began Grade I, the reading tasks were easy to do. His readers had many pictures and he enthusiastically translated what he saw. The few words in the stories were small ones which were easily remembered. Those he could not remember he could usually figure out using the pictures. The year is almost over, the words in the stories have become difficult to remember, and the pictures have become fewer. The little boy feels lonely and frustrated because he has not learned to read.

Reading materials used in beginning reading instruction typically contain an abundance of pictures. They are colorful and occupy much of each page. The story is printed on the remaining portions. As words increase in frequency and difficulty, pictures become fewer. Most basal reading series assume that as this occurs a young reader is weaned from the texts containing picture book format to those containing primarily print.

Some children, such as the small boy, experience frustration and failure in the early stages of beginning to read. Part of their

difficulty may be due to the instructional reading materials used to teach them. The graphic content (graphic refers to both the pictorial and graphemic information) of currently used instructional reading materials is not unlike that which has been used for the past fifteen years. Over ten years has passed since Chall's (1967) major review of reading materials used in beginning instruction. At that time she indicated that if a child's attention "is constantly directed to pictures, the beginning reader may be distracted from the words and get a completely erroneous idea of what reading is all about" (Chall, 1967, p. 259). Today, pictures continue to predominate most pages in beginning reading materials, heedless of Chall's caution.

Pictures have supposedly been provided to assist children during initial stages of reading. When children begin to read they are able to identify very few words by looking at the words by themselves. Pictures to accompany the words have been assumed by all but a handful of skeptics to provide beneficial sources of information to beginning readers (Bloomfield, 1961; Arnheim, 1974; Richard, 1974; Samuels, 1974). Consequently, abundant pictorial information has been provided for beginners.

Typically, the graphemics (printed words) and patterns of graphemics have been carefully controlled in beginning reading materials. The graphemic information is gradually expanded, that is, vocabulary is increased and syntactic structures become more complex. For a beginning reader, printed graphemics become increasingly complicated to process.

Other variations are often made by publishers. There may be

changes in pictorial content. For example, rather than pictures continuing to carry duplications of graphemic information, they may contain, either partial information which is supportive in function, or decorative information which is ornamental in function.

Ideally, children are trained to find messages in pictures in the early stages of beginning reading, then gradually read printed words supported by pictures, and finally read only printed words. If this occurs in all beginning readers, the changes made to both graphemic and pictorial information are inconsequential. However, it is possible that some children continue to require the use of pictorial information in decoding graphemic messages. From the publisher's viewpoint messages become graphemically self-contained, and the need for pictorial information while becoming less obvious, also appears to be less necessary. It is assumed that children adapt to processing increasingly complex graphemics, at the same time as fewer graphemics and pictures of varying function are used.

The appropriateness of this assumption is questioned in this study. It appears that some children may depend on pictorial information, and experience difficulty when changes are made to print and pictures.

Watts and Nisbet (1974) consider a first stage in the process of learning to read to be an extensive dependency on visual information (p. 15). They postulate that a reader experiencing difficulty searches material more thoroughly for clues to understanding the information. One possibility is that when appropriate clues are not uncovered in graphemic detail, pictorial clues are sought. In this

case, the child experiencing perpetual difficulty with graphemic information, comes to use and depend on pictorial information. Change in complexity of graphemics could increase the pictorial dependence. Change in pictorial function or in numbers of pictures effectively changes his source of information, because he has learned to rely on them. The entire sequence potentially places great demand on the beginning reader.

THE PROBLEM

One problem then for the young reader is effective usage of the pictorial and graphemic information provided for him in beginning reading instruction. A study should be conducted to explore the use of modal information by the beginning reader. Both the degree of the dependencies and their nature should be investigated.

THE PURPOSE

The major purpose of this study, then, is to investigate the degree to which children, who are near the end of first grade, depend on pictorial and graphemic, only pictorial, and only graphemic information in beginning reading. In addition, the study attempts to determine whether the children prefer using the same mode of information as that on which they demonstrate dependence.

To fulfill the major purpose involving modal dependence, the efficacy with which high, medium, and low achievers in reading use graphic details is investigated. In order to investigage preferences, students are asked to respond to oral questions.

RATIONALE

On a logical basis, a child enters first grade with linguistic and cognitive skills which equip him to undertake learning to read. He also has attitudes and expectations that may influence his motivation and therefore his progress. Armed with his skills, attitudes, and expectations it is the child's objective to reconstruct to some degree, a message encoded in graphic language. The reconstruction is based on information the child decodes, but is affected by skills, attitudes, and expectations.

Information can be drawn from a variety of sources, both internal and external to the reader (Goodman, 1970; Smith, 1974; Denburg, 1977). The major concern in this study is with externally presented information exemplified in the pictorial and graphemic modes used to present initial reading information. Focusing on children's use of information presented in instructional reading lessons will enable the researcher to determine their most productive information source, as graphemic, pictorial or a combined mode (the combined mode will be designated as the graphemic & pictorial mode).

A lesser concern is with the subjects' internal disposition. That is, whether their preference once expressed, is realized in their highest performance using one presentation mode.

Children are thought to depend on graphic information during initial stages of learning to read (Watts and Nisbet, 1974). That is, when pictorial and graphemic information are both present in duplicative fashion, children may select freely from either source and when one source of information (either graphemic or pictorial) is available

children are forced to draw only from it. In this study provision is made to secure data by regulation of the information mode (using free-choice and forced-choice). Achievement information to indicate which is the most effective mode for each reading achievement group is collected.

A summary of the reading achievement groups and presentation mode information can be seen in Table 1.

DEFINITIONS

In order to avoid reader confusion the following definitions were formulated:

Reading

Reading is a process by which a reader reconstructs to some degree, a message encoded in graphemic and/or pictorial language.

Graphic

The term graphic is used to indicate both graphemic and pictorial information. However, when pictures only are used they are referred to as pictorials, and when words only are used they are referred to as graphemics.

Dependence

Dependence is reliance on graphic detail as indicated by reading performance scores when students are using graphemic and/or pictorial modes. The mode on which highest achievement is obtained is that on which dependence is indicated. Dependence is associated with highest score on three presentation modes.

Preference

The positively expressed opinions about story material read in

TABLE 1

ACHIEVEMENT GROUPS AND PRESENTATION MODES

Achievement Group	Presentation Modes		
	Graphemic & Pictorial	Graphemic Only	Pictorial Only
High Reading Achievers[a]			
Regular Form (6)	HRGP	HRG	HRP
Modified Form (6)	HMGP	HMG	HMP
Medium Reading Achievers[b]			
Regular Form (6)	MRGP	MRG	MRP
Modified Form (6)	MMGP	MMG	MMP
Low Reading Achievers[c]			
Regular Form (6)	LRGP	LRG	LRP
Modified Form (6)	LMGP	LMG	LMP

Note: Numbers in parentheses indicate number in each group. Total = 36.

[a]High Reading Achievement Groups = HRGP, HRG, HRP and HMGP, HMG, HMP

[b]Medium Reading Achievement Groups = MRGP, MRG, MRP and MMGP, MMG, MMP

[c]Low Reading Achievement Groups = LRGP, LRG, LRP and LMGP, LMG, LMP

response to questionnaires is taken to be their preference.

Performance

Performance reading achievement scores assessing the children's answers to questions about material read. The total number of questions answered correctly for each mode comprises the performance score for that mode. In this context, achievement is a synonym for performance.

Readers

High, medium, and low achievement readers are defined by (a) Metropolitan Readiness Scores (MRT) on which high readers achieve between the 95-76 percentiles, medium readers achieve between the 75-25 percentiles, low readers achieve between the 24-6 percentiles; (b) the rank-ordered ratings of their classroom teachers based on student's ability to read independently from preprimer material and answer questions requiring detail recall. Students with the same ratings on the MRT and by their teacher are placed in that achievement group.

Form

Story material is presented in two forms, regular and modified. The stories in regular form are those in which graphics are as found in the originally published reader. There are three regular forms of the stories: (a) graphemic & pictorial (HRGP, MRGP, LRGP, see Table 1 for key to descriptors); (b) graphemic (HRG, MRG, LRG); (c) pictorial (HRP, MRP, LRP). The stories in modified form are those in which graphic content is adjusted to allow both graphemic and pictorial

information to carry complete messages when each is presented separately. Similar to the regular forms there are three modified story forms of the stories: (a) graphemic & pictorial (HMGP, MMGP, LMGP); (b) graphemic (HMG, MMG, LMG), (c) pictorial (HMP, MMP, LMP). The modified forms of the graphemic and of the pictorial modes together become the modified form of the graphemic & pictorial mode (b + c = a).

Mode

Refers to the particular use of graphemic and/or pictorial material in the story presented.

Each form of the three stories is presented in three modes. The three modes used are (a) graphemic & pictorial (e.g. HRGP-HMGP, see Table 1 for key to descriptors); (b) graphemic (e.g. HRG-HMG); (c) pictorial (e.g. HRP-HMP).

Stories

Refers to the three stories selected from the Nelson Language Development preprimer entitled Funny Surprises. The stories used are "Something New," "Jump," and "The New Fish." For each story there are six different story presentations. Each story is presented in regular and modified forms. In each of the regular and modified forms the story is presented in the graphemic & pictorial mode, the graphemic mode, and the pictorial mode.

HYPOTHESES

For purposes of this study the following research hypotheses have been formulated. These are to be restated along with their accompanying Null Hypotheses in Chapter III.

Research Hypothesis #1

Performance scores on regular and modified forms will not be significantly different for (a) high reading achievers (HRGP = HMGP, HRG = HMG, HRP = HMP); (b) medium reading achievers (MRGP = MMGP, MRG = MMG, MRP = MMP), (c) low reading achievers (LRGP = LMGP, LRG = LMG, LRP = LMP).

Research Hypothesis #2

Reading performance scores of low achievement readers will be higher when reading in the pictorial mode than in (a) the graphemic & pictorial mode, or (b) the graphemic mode (LRP-LMP > LRGP-LMGP, LRP-LMP > LRG-LMG).

Research Hypothesis #3

Reading performance scores of medium achievement readers will be higher when reading in the graphemic & pictorial mode than in (a) the pictorial mode, or (b) the graphemic mode (MRGP-MMGP > MRP-MMP, MRGP-MMGP > MRG-MMG).

Research Hypothesis #4

Reading performance scores of high achievement readers will be higher when reading in the graphemic mode than in (a) the graphemic & pictorial mode, or (b) the pictorial mode (HRG-HMG > HRGP-HMGP, HRG-HMG > HRP-HMP).

Research Hypothesis #5

High achievement readers will have higher reading performance scores than (a) medium achievement readers or (b) low achievement readers on each of the three story modes (a > b, a > c).

Research Hypothesis #6

Reading achievement groups (high, medium and low) will prefer

the modes in which their reading performance scores were the highest.

SIGNIFICANCE OF THE STUDY

In beginning reading instruction pictures are a predominant source of information. As printed words are used with increasing frequency, they should come to supply a more dominant source of information than the accompanying pictures. By the end of the first grade it is assumed that children will read more words and fewer pictures. The present study may indicate that some children, reading near the end of Grade I, over-rely on the pictures for information. As skill in reading is related to efficiency in reading printed words, continued dependence on pictorial information is seen as anti-productive.

This investigation is concerned with the role of pictures with words as they are used by children. Previous research has rarely concentrated on the way children use pictures with words in beginning reading (Denburg, 1977). If children demonstrate unexpected usage of the three modes (graphemic & pictorial, graphemic, pictorial), they will in effect be assigning personal roles to the pictures and printed words. Of this teachers and publishers may be unaware. For example, if a child demonstrates better performance using pictorial information than graphemic information, he will be subjugating the print to the pictures rather than the pictures to the print. The pictorial information duplicates graphemic information and because a role is not assigned to the pictures by others he designates his own.

Publishers and educators have in practise vaguely assigned

roles to the pictures in the early readers (Richards, 1974). Consciously or not, children have been left to use pictures as they wish. Consequently the designing of pictures to be included in readers has not been controlled to fulfill said purposes, and the effect of their presence is unpredictable.

Indications of research allow possible predictions as to effects of using materials such as the Nelson Language Development Program for reading instruction. Such predictions could be used to build and strengthen reading programs as follows:

1. By increasing teacher awareness of the findings indicated, and the need to monitor reading achievement for the possible effects.

2. To communicate to publishers the findings of the study along with suggested changes to diminish unfavorable and increase favorable effects being realized.

3. To suggest to educators that further research is necessary to further define the effects of the materials on beginning reading achievement by clarification of pictorial roles and most appropriate usage for them.

If some children demonstrate dependence on pictorial information it could be productive in teaching beginning reading, to first make teachers more aware of the effect of pictures on some readers, and to monitor these effects on the achievement of their beginning readers. Second, it would be possible to contact publishing houses, making them aware of the findings of the study and recommend that they consider the findings when printing materials for beginning reading instruction. Third, it could be pointed out to those who train

teachers, of the need to monitor the effects of pictures on the achievement of beginning readers, to emphasize the need for further research in the area, and the need for controls to be placed on publishers.

LIMITATIONS

The findings of this study are limited by the following factors:

1. The sample consists of 36 first grade girls and boys from three public schools within middle class income regions of Edmonton and findings will be applicable only to like populations.

2. Materials for data collection are based on three stories and guidebook selections from Funny Surprises, first preprimer of the Nelson Language Development Program. Results could be different if other reading materials were used.

3. Reading achievement on modes is measured by detail level recall, on a limited number of questions (four per mode). Use of alternative measures could produce different results.

ASSUMPTIONS

The following assumptions are made in defining the investigation to be undertaken:

1. Each subject decodes the most complete message from the mode upon which he is most dependent for information.

2. Each subject's performance scores are indicative of his ability to read the information in each of the three modal presentations.

3. Each of the three stories in the regular forms contains highly similar pictorial and graphemic information.

4. Each of the three stories in the modified forms contains highly similar pictorial and graphemic information.

5. Subject performance scores are based on differences in modal presentation rather than interest in story presentation.

OVERVIEW OF THE STUDY

An investigation of the possible pictorial dependence was undertaken. First grade children were provided with reading situations based on stories from a basal reader preprimer. Subjects were grouped into achievement groups. Half of each achievement group read modified form stories, and half read regular form stories. In the appropriate forms, each reading achievement group read a story in which both pictorial and graphemic information was exposed, one in which print only was exposed, and one in which pictures only were exposed. Lesson plans of similar format and content were developed. Children were asked questions to which they printed responses on worksheets. Their responses were used to evaluate their performance using each of the three modes. Two and three-way Analyses of Variance were used to statistically evaluate group performance, differences between group performance, and differences between male and female performance. Scheffé's multiple comparisons were used to determine differences between specific groups. Total preference scores were also calculated according to the subject's expressed preferences.

The study is explained in detail in the following chapters.

Chapter II presents background information on the use of visual information in communication in general.

Chapter III presents background information on the use of visual information in reading in particular.

Chapter IV describes the sample selection, the pilot study, discusses material preparation, the research hypotheses stated in null form, and the main study.

Chapter V presents the performance scores, the results of the analyses of the performance scores, and a discussion of the findings.

Chapter VI, in summary of the research, presents an overview of the study, the findings by hypothesis and conclusions drawn, discusses implications of the study, limitations of the study, suggestions for further research, and a concluding statement.

Chapter II

BACKGROUND LITERATURE: THE USE OF VISUAL INFORMATION IN COMMUNICATION IN GENERAL

Ours is a visual age. Children and adults alike are bombarded with visual information from morning until night. Before our eyes pass a multitude of labels, signs, publications, and electronic displays. Children learning to read learn to cope with and use visual information in reading materials. Of importance in this study is the degree to which beginning readers depend on the visual information in the readers and whether the children prefer using the visual information on which they demonstrate dependence. The purposes of the study will be clarified by an examination of background literature which discusses theoretical and research support in terms of the use of visual information.

Attention to background literature will focus on the area of communication in general in Chapter II. The relating of this support to reading and the present study is included as a substantial portion of the chapter. The reading process in particular, instructional reading materials, learning to read, and the modal dependencies of beginning readers are discussed in Chapter III.

Communication is seen in this chapter as encompassing the reading process and as such it is recognized as subsuming basic concerns such as redundancies, graphic codes used to encode messages, controls over the use of graphic information, and theories of modal selection which predict selection of one graphic mode over another.

Communication is defined by the American College Dictionary (1962) as "the imparting or interchange of thoughts, opinions, or information by speech, writing, or signs" (p. 244). At least three elements are involved. They are the sender, the message, and the receiver (Schramm, 1954, p. 113). The sender, or person responsible for initiating the process is the author or originator of reading material. Obviously, the message is composed of thoughts, opinions, or information which is graphically encoded for presentation in reading materials. The receiver or reader determines whether there is an interchange as he processes the graphic messages. The processing proceeds according to knowledge of reading and reading materials being used.

In order for decoding and communication to occur the graphic information must attract and hold the viewer's attention (Schramm, 1954). In reading materials the graphics contain characteristic information which may be partially responsible for both attracting and maintaining a viewer's attention.

REDUNDANCIES

To increase the probability of the viewer successfully decoding a message, redundancies are built into reading materials (Schramm, 1954; Goodman, 1970; Gombrich, 1972). For example, there are 44 phonemes in English. The possible sequences in which they can be combined is theoretically very large. Of these possible combinations, many do not occur in our language. English sequences are

permissible or not according to rules accepted as possible combinations of phonemes. Some sequences can occur only in initial, medial, or final positions in words. On the other hand, some sequences occur with great frequency in all three positions. There is similar constraint on sequences of graphemes, morphemes, words and patterns, inflectional endings, and syntactic ones. This constraint is a characteristic of all known languages. It represents the percentage of the message that is not open to free choice. Communication theorists point out that this constraint on possible sequences cuts down the amount of information which each unit of language can communicate. Although redundancies may appear inefficient in language because of the constraints placed upon them, they simultaneously ensure more frequent use of allowable sequences in communicator's redundancy. Communicator's redundancy is used if it is anticipated that the audience may have a hard time understanding the message. If difficulty is expected more redundancy is introduced, possibly as repetitions, examples, or analogies. According to Schramm (1954, p. 116) we may choose between transmitting more information in a given time, or transmitting less and repeating more in the hope of being better understood.

From the view of the beginning reader redundancies are seen as a boon. The child reading a page of graphemics is most likely to follow language with which he is familiar. Knowledge of language redundancies and constraints prepares him for some notion of what comes next before he sees or hears it. Communicator redundancies are supplied in pictorial and graphemic information. From a communication point of view, repetitions and examples can be presented in alternate

modes of information to ensure learning to read. In most current basal reading preprimers both language and communicator redundancies are available. If some of the information is missed it is not usually critical, because other redundant information is predictably available. What is critical is that the beginning reader knows of and uses both kinds of redundancies to select information in reading.

Of concern in the present study is whether use of both graphemic and pictorial modes provides for efficient use of redundancies. In beginning reading instruction, it may be less efficient to use graphemics and pictorials than to provide reader support through use of one mode where more frequent usage of allowable language sequences is provided. On the one hand the reader is now expected to become a proficient reader of graphemics by using graphemics and pictorials. On the other hand a proficient reader could develop through more efficient use of only graphemics. Both approaches provide for usage of the redundancies and constraints of language. Acceptance and usage of one or the other, or both of these approaches is a personal decision. If the decision is to use two kinds of modal information because difficulty is anticipated in reading, then it is important to realize that the two modes can be combined in a variety of ways.

Most beginning reading materials such as preprimers include combinations of graphemic and pictorial modes that children may decode. When they decode children may select from the following:

a. both graphemic and pictorial information relying equally on each,

b. either graphemic or pictorial information,

c. a sampling of information from pictures, but rely on graphemics as a primary source,

d. a sampling of information from graphemics, but rely on pictures as a primary source (Denburg, 1977).

The reader selects either partially or completely from the modes of information presented. In practise, beginning reading instruction often introduces children to isolated pictorials first and then to both graphemic and pictorial content second. Thirdly, it has often been expected that the children become proficient enough to transfer to material where they sample pictorial information, but rely primarily on graphemic information. Fourth and last, children are expected to transfer to proficient usage of graphemic information only. It is possible, however, that some children come to rely on pictorial information in the first and second instances, and continue to rely on it even though it becomes an undesirable practise in the third instance. Progression to only graphemic information would not be possible then. What is thought to be advantageous for these children is the provision for more frequent usage of allowable language sequences through use of pictorial and graphemic information. Instead the effect of multiple modal and language redundancies may be to encourage inefficient strategies in decoding information and hinder reading progress.

Teachers' instruction and materials used are seen as largely determining which of these occurs. The teacher is seen as 'imposing attributes' on graphic information through instruction and guidance

(Salomon, 1974). Beginning readers may be trained by the teacher to search for either complete or partial information from the graphics provided. The assigned attributes of materials serve to acknowledge degrees of redundancies as well as their constraints, within graphemic or pictorial presentations or between the two. The issue can be further resolved through recognition and discussion of the graphic modes which are subject to attribute imposition.

GRAPHIC MODES

The duplicative nature of the information presented graphically and pictorially in beginning reading material allows each to be used to relay information to the child. That is, in decoding the information on a preprimer page, both pictures and printed words may signal meaning in the receiver's experience. A picture of a ' ' and the word 'fish' are separate units, each having potential to trigger meaning (see Figure 1). The manner in which the meaning of ' ' and

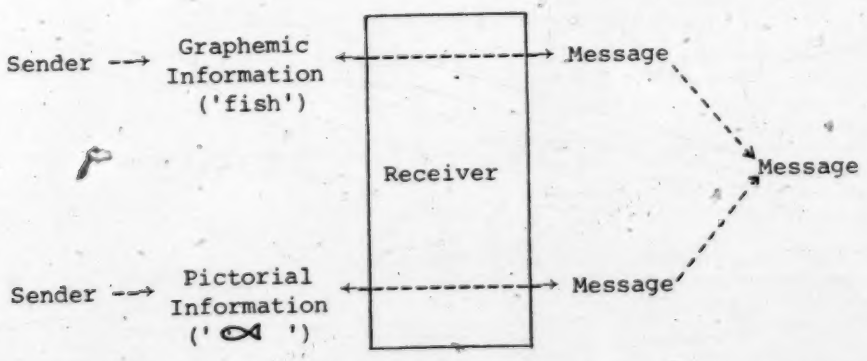


FIGURE 1

SEPARATION OF THE TWO MODES ILLUSTRATES TWO MESSAGES TO BE DECODED BY THE RECEIVER

'fish' is to be decoded is dependent on the intended purpose of the

pictorial information which accompanies the graphemic information.

Uses of the Modes

There appear to be four possible uses for both modes of information in the beginning reading material, dependent upon which mode is most emphasized. These four uses follow.

Duplicative use. Modes are considered duplicative if the information presented overlaps pictorially and graphemically. The overlap may be either partial or complete. The overlap potentially represents redundant information common to both modes. Whether or not this is realized as such is determined by its use, because the assumption here is that both modes are decodable into language.

It is questionable whether graphemics and pictorials can potentially carry like meaning when a picture (unlike a verbal prompt) could rarely be completely unambiguous with respect to the information portrayed (Gombrich, 1972; Denburg, 1977).

In the context of beginning reading material it is felt that pictorial and graphemic information would be expected to support each other (Denburg, 1977). Where both are supportive, the probability of correct reconstruction of meaning is increased (Gombrich, 1972). 'Supportive' has been interpreted in this context as making a positive contribution to the decoding process. It could also imply a second or supplementary use of graphic information.

Supplementary use. A graphemic or pictorial code may provide supplementary information to the decoding process. A supplement could conceivably provide essential information or non-essential information.

A picture may provide an essential contextual supplement to aid in word identification. Non-essential supplements would enable a reader to understand more about the coded message, even though the supplements may not be necessary. Both types of supplements potentially offer a positive contribution to an encoded message, but with fewer redundancies than duplicative information.

A research study conducted by Denburg (1977) has used supplementary pictorial information. The study examined ability of Grade I beginning readers to identify words in context. By using carefully matched pictures and sentences, she was able to demonstrate the use of pictures as "one additional source of information from which the beginner can sample as he reads" (Denburg, 1977, p. 177).

Her study remains unique in the area of pictorial usage and beginning reading materials. Denburg described pictures in her study as neither 'adjunct' nor 'antagonistic.' The pictures were considered a neutral source from which readers were able to draw as so desired. For some they were to provide non-essential information and to some, essential information. This was dependent on reader need. Pictorial construction for the study carefully controlled extra information that could have been adjunctive or antagonistic. She avoided using pictorial information in a decorative fashion.

By controlling the graphic information Denburg created an atypical reading situation for her study. However, by clarifying the pictorial role intended, and by limiting pictorial content, there was less chance of imposing unintended attributes on the material. This will be discussed as an alternative format for instructional materials

later in the final chapter of this thesis.

Decorative use. A code used decoratively serves to enhance a page. Pictures may be decorative by themselves as an attractive feature on a page. These may also contain decorative features such as shading, detailing, and coloring. Graphemics may also be used decoratively to present unorthodox shapes of letters, or to be downplayed in comparison to pictorial information to become decorative in function.

In a discussion of powers and limits of verbal and non-verbal signs Richards (1974, p. 114) reveals his conception of useful depictions. Generally speaking depictions include pictorials. He advocates the strict elimination of distraction when using depictions. Distractions are considered irrelevancies or elaborations which are a part of decorative information.

Decorative use could be assumed for much of the pictorial information in the stories used in the present study. For example, in the story Jump (p. 26), there are two separate pictures. One of the pictures is obviously related to the graphemics, the second is only marginally related. The second could be used for decorative purposes. A graphemic example is on the same page. Block letters spelling the word 'paste' are printed on a pictorial bottle. This word would be unfamiliar to most beginning readers, and would be used decoratively.

Independent use. Independent codes are either pictorial or graphemic codes presented separately. Initial training in beginning

reading instruction often begins with use of independent pictorial codes, gradually transferring to duplicative codes, then to a supplemental code where pictures are not intended as an essential source, and finally to the use of an independent graphemic code.

Due to the variety of presentations in reading materials there is uncertainty as to the information a proficient reader may encounter. The only consistent element in all reading materials is the graphemic one, and that is the reason proficiency in reading is equated with independent usage of graphemic information.

The selections used in this study contain pictorial and graphemic information for primarily duplicative or supplemental usage. In the past the readers of these selections are assumed to have used the pictorials as supplementary information even though they may have been duplicative in design.

Currently, instructional reading materials present general statements about how pictorial and graphemic information is to be used to assist children (Guidebook for Funny Surprises, p. ix). Usage has not been specifically assigned, nor has usage been designed to fulfill specific purposes. That is, there has been minimal control over the design of pictorial information to predict the attributes which can or will be imposed upon it. Pictorial information specifically, has included duplicative, supplemental, and decorative information. The effects are expensive financially as well as in terms of developing beginning reading abilities (Chall, 1967; Richards, 1971).

CONTROLS OVER USAGE OF GRAPHIC MODES

A child begins reading with limited knowledge of language and its constraints. He has a good knowledge of oral language which will continue to grow as he learns new things. He does not have the same knowledge of language in graphic modes. He is expected to decode pictorial and graphemic information, beginning with the former and with proficiency decoding the latter. Frequency of language usage through use of the two modes may increase that learning. The two modes may as easily be used ineffectively and learning be hindered when intended use of the encoded material is not specifically assigned or designed. A child's experience with graphically encoded language may not be sufficient for him to know that graphemic information, if available, is the "appropriate" information to use. Furthermore, a teacher's experience teaching reading may not be sufficient to recognize a child who lacks the sophistication to select graphemically when both pictures and graphemics are available. Teachers of reading have control over the use of graphic information in reading books. They have more limited control over the messages contained in the books, as content is within the domain of publishers. Publishers have jurisdiction over what is to be contained and the fashion in which it is to be contained. Part of the role of publishers is seen as adjusting instructional reading materials to suit the needs of the children who will be using the materials. Research is an important determiner in decisions regarding inclusion and exclusion of information.

Research concerning the use of visual information in reading

has been done in a fragmented manner dealing with pictures as distractors (Chall, 1967; Samuels, 1968; Gombrich, 1972), as motivators (Vernon, 1953; Samuels, 1968; Kennedy, 1974), in word learning (Samuels, 1968), and effects on attitudes (Lichner and Johnson, 1977), to mention only a few. Few studies have been concerned, as is the present study, with the use of the visual information presented in typical basal reading materials. Presently graphemics are controlled by use of basic vocabulary, limited types of sentences, and so on, but there are not similar controls placed on the pictorials used. The present study may indicate there is inefficient use made of the two kinds of information, in which case, they should be re-examined in the materials. Pictorials, because they are presently designed in a less controlled manner than graphemics, would warrant important attention.

The designing of materials for specified purposes is seen as one means of graphic control, although total control is not feasible, however, there are inherent qualities which cannot be eliminated

Inherent Qualities of Graphics

There are inherent in graphic materials a number of qualities requiring recognition. Because it is not possible to eliminate these qualities they may be important in determining usage of graphic information provided. These qualities include the following.

1. Unless a reader or viewer wills it, neither pictorial nor graphemic encodings carry messages with them (Richards, 1974). In a manner unique to himself a reader decodes messages according to experience and needs he brings with him to the situation. This implies

that it is the reader who is in final control over use of material.

2. In decoding graphemic information there is greater guarantee of reading language as specified in print than there is in reading pictorial information that is less precisely defined. In decoding pictorial information degrees of decoding are possible, but there is no certainty that the decoded information is considered most relevant by the artist. It has been recommended that, ". . . it never be taken for granted that a picture which records a certain fact does actually convey the desired information" (Arnheim, 1974, p. 206).

3. In its ability to arouse the interest of a viewer the picture is supreme (Gombrich, 1972). An inexperienced reader, upon encountering a typical preprimer page may be drawn to attend to the picture first. Arnheim (1974) says that once attention is drawn to the picture, the print must be strong, interesting, and relevant enough to deserve the viewer's transfer of attention.

Even though it appears possible to design pictorial information to suit assigned roles, the strength of these qualities may be sufficient to transform the ideally dominant mode of graphemics to the subordinate mode replacing pictorials.

4. It is not the quantity of the information presented, but the quality which controls the dominance of the mode (Arnheim, 1974). In preprimers such as Funny Surprises (Nelson Language Development Program, 1970), the pictorials occupy much of the page. To present an example of the quantity of information used on a preprimer page one page was randomly selected from Funny Surprises. Of the 333 square centimeters on the page, approximately 77% was pictorial information,

10% was graphemic information and the remaining 13% was blank space.

According to Arnheim's statement the ratio of pictorial information to graphemic information and blank space is not sufficient to control the dominance of one over the other. Research indicates that although the eye focuses initially on the prominant pictorial information (Kennedy, 1974; Richards, 1974), if there is sufficient strength and appeal in the graphemics the eye will transfer and remain transfixed to decode the graphemics (Schramm, 1954). From the child's vantage point dominance or subordination of the graphic modes is self-determined, but strongly influenced by the quality of the material. Although it appears obvious, it is important to note the power of the teacher in communicating quality of material. The teacher's concerns and expectations about material are passed on to her students, and her opinions often become theirs (Quandt, 1972).

5. The graphemics presented represent specific language statements. Pictorial information cannot match the precision of the graphemics (Gombrich, 1972). For example, given a picture representing 'dog,' we cannot precisely describe it as 'the dog,' 'a dog,' without provision of a more complete statement. In graphemics 'dog' would be accompanied by a definite or indefinite article, explicitly indicating information about 'dog.' A child who is primarily motivated by the process of learning to read seeks information from the graphemics which foster the learning of such precisions as 'a' and 'the.' A child who is primarily motivated by the content of materials seeks information which may or may not build further reading proficiency.

Funny Surprises emphasizes the relationship of reading to

thinking and language development. Competency in all phases of language is promoted through use of varied ideas (Teachers' Guidebook, 1970, p. v). In the three stories used for the present study, the majority of directives suggested during silent reading were related to non-textual aspects such as pictures, and relating to experiential backgrounds. Material content is the prime motivational appeal of the material in this language development program, but the precise nature of the language is not as obviously emphasized.

6. The graphemic mode requires a mental discipline more stringent than that required for the intake of pictorial information (Arnheim, 1974). Arnheim's reference is to children in the school system who require discipline to follow linear channels, and to supply action and sequence in decoding a graphemic message into oral language (1972). An isolated picture can be scanned to informally select information. To fully communicate with the artist of a picture much more discipline is required. This type of training is usually overlooked in beginning reading instruction. In reading, from the beginning, concentrated effort is spent training readers. They learn to follow the linear channels of conventional print and to supply action and sequence in decoding.

How children select visual information to make the communication meaningful is rarely mentioned in instructional materials. A precedence that has not been set by publishers or by teachers, must be set by beginning readers. Somewhere within the channels involved in children learning to read conscious or unconscious assignment is made to usage of visual information. The assignment determines whether informative

qualities are capitalized upon or downplayed in reading.

Most children appear to make their own adjustment to the 'demands' of graphics in learning to read, sampling as need be from graphemics and pictorials. Concern is expressed as to the overall practicality of this unstructured approach. A more systematic treatment controlling the design and assignment of usage by publishers and teachers would seem to be advantageous in learning to read (Arnheim, 1974; Richards, 1974; Denburg, 1977).

Learning to read has been discussed in relation to redundancies in language and communication; to graphic modes of which usage can be controlled through assignment or designation. Attention will now centre on beginning reader selection of visual information, and two theories of selection which have been postulated by communication theorists.

THEORIES OF SELECTION

Principle of Least Effort

B. J. Underwood's "principle of least effort" has been offered by Samuels (1970) as an explanation for the use of graphics in reading. The principle states that "when a complete stimulus is presented to a subject, he will select that aspect of the total stimulus which most easily elicits a correct response" (Samuels, 1970, p. 48).

The Fraction of Selection

The fraction of selection is purported by Schramm (1954), to determine which information the child will select when presented with several modes of information (see Figure 2).

$$\text{Fraction of Selection} = \frac{\text{Expectation of Reward}}{\text{Effort Required}}$$

FIGURE 2

SCHRAMM'S VIEW OF INFORMATION SELECTION

According to Schramm (1954) the information selected depends on the effort required to arrive at a message and the reward that is expected for the effort expended. A task requiring much effort for small reward would be rejected for a task requiring less effort or greater reward.

Discussion of the Theories

If one is to accept the principle of least effort, beginning reading must be viewed in a simple manner. To illustrate, when a preprimer page is presented to a beginning reader, he will read or pretend to read that aspect of the total page which most easily elicits a correct response. In other words, having been provided with a purpose the child reads or pretends to read to be able to fulfill that purpose as easily as he can. Children using preprimer material would in that event remain transfixed with pictorial information. It is pictorial information which is most familiar to the beginner (Kennedy, 1974) and which is used most frequently to initiate programs (Chall, 1967).

There appears need to acknowledge within the principle the purpose for which a child reads. Purpose dictates 'why' a child approaches a page, and 'what' he is intended to use from that page. A child may have several purposes for reading. He may have an overall purpose, and more specific purposes at the same time. According to

the purposes he will develop expectancies about: where he can find acceptable responses on a page, what is acceptable or not to significant people around him, and how rewarding different responses can be for him. The beginning reader may select modal information according to how rewarding he thinks his responses will be and the amount of effort those responses require. This is essentially an expression of the fraction of selection (Schramm, 1954).

If the child does select according to expectation of reward and effort required, there are incredible demands placed on his flexibility. Consider briefly the organization of material in Funny Surprises. The book presents three graphic selections for pictorial interpretation, for pictorial and graphemic interpretation, and finally there is one page for graphemic interpretation alone. If these purposes are conveyed to the beginning reader, the change in purpose occurs rapidly. Some children may not adapt as quickly as the material demands. They may continue to select the information requiring least effort and for which they can expect highest reward. After interpreting the pictures in the first selections, expectations may be developed which are not maintained later when graphemics are included for use. Although children may be encouraged to interpret pictures initially this becomes less acceptable and less rewarding later on.

The teacher is seen by this writer as affecting the information selection in two ways. First, it is clearly the teacher who assigns modal usage. The assignment is based on her preferences (and somewhat limited by materials), but it can be presented consciously

or unconsciously during instruction and guidance. Second, it is the teacher who trains children to assign modal usage themselves. It is through consistent and obvious acknowledgement of her choices that her choices become those of her students. To illustrate, student attention ought to be drawn to graphemic information and be rewarded consistently. This should lead to increased usage of the graphemic mode. Attention might also be drawn to pictorial information and be rewarded consistently. This should lead to increased usage of the pictorial mode.

In effect the selection of visual information made by a beginning reader is largely determined by the teacher. The demands of the teacher become the demands of the material. Previous discussion was concerned with the rapid adaptation required of the child to cope with visual information in Funny Surprises. It would now be appropriate to expand this concern to include the rapid adaptation required of the teacher of the child for both to cope with the suggested material. While most students can probably cope with initial pictorial involvement and transfer gracefully to changing purposes, some children may encounter difficulty and frustration as a result. For the teacher, increased awareness of usage of visual information would increase justification for inclusion and flexibility in adaptation to reading materials for all students.

A SUMMARY AND DISCUSSION OF COMMUNICATION

As a communication process, reading is subject to similar considerations as other communication processes. Language is a key part of the process. Redundancies and constraints of language can be viewed as advantageous or inefficient. In the context of beginning

reading material the inclusion of graphemics and pictorials offers two modes which can be decoded into language. If the two modes allow for frequent usage of allowable sequences they are advantageous. If, however, they encourage reading strategies that are inefficient they are not advantageous.

The inclusion of two modes of information on a page suggests two possible expressions of language. Viewed separately they also suggest two decodable messages. Optional usage can be designed or assigned to the two modes. Use may be to present duplicative, supplementary, decorative, or independent information. Reading teachers strive to develop independent usage of graphemic information, even though both types of information are indiscriminately included in most beginning instructional materials.

It is feasible that use of graphemic and pictorial information can be controlled through assignment and manner of design. Inherent qualities within the modes, although they cannot be extinguished, can be anticipated and controlled. Materials used conventionally allow beginning readers leverage in information selection. The 'fraction of selection' predicts that children select visual information according to effort required of them and their expectation of reward.

In the conduct of this study it is important to view reading as a communication process. Reading is communication based on knowledge of language as realized through decoded use of visual information. In this expanded form reading recognizes degrees of abstract language decoded from graphemics and pictorials, as well as more concrete modes carrying presentations of potentially separate messages. Viewed in

this way it becomes possible to question possible dependencies on visual information in beginning reading books. For example, some children may continue to rely on both modes of information instead of gaining in proficiency of graphemic usage. Demonstration of such dependence could be shown by continuing use of pictorial information in answering questions posed during silent reading sessions. Demonstrated modal dependencies may or may not be expressed as modal preferences. The major concern of this investigation is with the possibility of modal dependencies, and in additional modal preferences of beginning readers.

In an effort to present a clearer understanding of modal dependencies it is valuable to discuss the reading process, instructional materials, learning to read, and concern with modal dependencies. This is presented in Chapter III as background literature on the use of visual information in reading in particular.

Chapter III

BACKGROUND LITERATURE: THE USE OF VISUAL INFORMATION IN READING IN PARTICULAR

The communication process as it subsumes reading was discussed in Chapter II. Of concern in the present chapter is reading in particular. This chapter is subdivided into four sections: the reading process, instructional materials, learning to read, and lastly a summary statement about modal dependencies of beginning readers as a primary concern. Each of these sections is described briefly below.

The Reading Process

As an example of communication, the reading process is discussed in relation to the learning of initial abilities which lead to proficiency in reading. Goodman's model of beginning reading (1970) is reviewed and adapted to include possible selection of information from graphemic and pictorial modes.

Instructional Materials

Learning to read, as communicating, involves processing beginning reading material. Materials most pertinent to this study are stories from Funny Surprises, first preprimer of the Nelson Language Development Reading Program (1970). Beginning reading material is discussed in terms of specifics pertaining to Funny Surprises.

Learning to Read

Reading is considered a communication process. Learning to read is seen as an initial phase in learning to communicate through use of graphic information. The visual information is typified by graphemic and pictorial information in early reading materials. Recent research in reading reveals ideas concerned with beginning readers' processing of graphemic and pictorial information and is reviewed and discussed in relation to the present study.

Modal Dependencies of Beginning Readers

In learning to read the child is seen as influenced by instructional procedures and materials. By including reading as an example of communication the influence of redundancies and the use and control of graphic modes become more visible. This fact added to increased awareness of the reading process, the kind of instructional materials often used, and learning to read itself emphasizes the feasibility of the development of modal dependencies by beginning readers. The possibility of modal dependencies is discussed in conclusion to the chapter.

THE READING PROCESS

In discussing the reading process, a definition of reading will be presented followed by Goodman's possible model for beginning reading, a modified model of beginning reading, and the implications of the models for reading. This section will be concluded with a summary and discussion of the reading process and communication.

A Definition of Reading

For purposes of this study, reading has been defined as: The process by which a reader reconstructs to some degree, a message encoded in graphemic and/or pictorial language. This definition is similar to Goodman's (1970, p. 5) with an adjustment specifying modes of concern therein. Goodman (1970) addresses himself to 'graphic language' which is inappropriate in the context of the present study. According to Goodman, the reader processes print on the bases of his knowledge and experience with language. The reader samples simultaneously and unsequentially from three kinds of information: (a) grapho-phonic, such as graphic, phonological, and phonic information, (b) syntactic, such as, sentence patterns, pattern markers, and transformational rules, (c) semantic information which includes experience, concepts, and vocabulary (Goodman, 1970, pp. 15-16).

Goodman's Possible Model for Beginning Reading

Goodman presents a model (see Figure 3), in which the beginning reader is seen as recording graphic input as speech (either aloud or internally) and then utilizing his own speech as aural input,

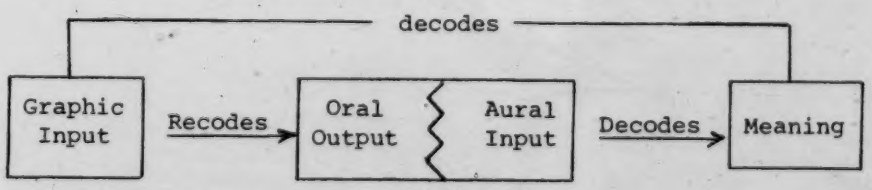


FIGURE 3

A POSSIBLE MODEL FOR EARLY READING
(Goodman, 1970, p. 17)

decoding as he does in listening. The model assumes some direct

decoding from print to meaning, even at early stages. Then, as the reader becomes more proficient he relies less on recoding to oral language redundancies in the information and decodes directly from graphic input to meaning.

A Modified Model of Beginning Reading

By labelling graphic input specifically as graphemic and pictorial input one more readily recognizes each as requiring minimally partial decoding (Schramm, 1954). A modified model of early reading is represented by Figure 4.

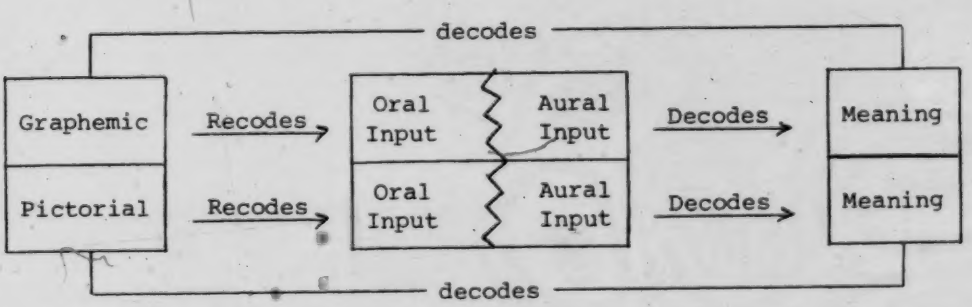


FIGURE 4

A MODIFIED MODEL OF BEGINNING READING

In the modified model the child beginning to read is seen as recoding graphemic and/or pictorial input as speech (either aloud or internally). Using his own speech as aural input, the reader decodes as he does in listening. As in the original model, the assumption is made that some direct decoding from print to meaning and/or from picture to meaning takes place even at early stages. As the reader becomes more proficient he relies less on oral language redundancies in the information and decodes directly from graphemic and/or pictorial

input to meaning or meanings.

Goodman's model is based on the concept of reading as the processing of language, and as such reading material is primarily influenced by redundancies and constraints of graphically encoded language. The modified model presents a similar concept, as expanded to acknowledge use of two modes. Each of two modes is representative of language and its redundancies as presented in Figure 4. The use of two modes of visual information in learning to read complicates the decoding process.

The Implications of the Models for Reading

The implications are as follows:

1. There is no guarantee of systematic usage of graphemic information as allowed in Goodman's model. In Figure 3 the reader is seen as actively drawing from the graphic input to decode meaning, because he has only one stated source of visual information from which to draw. Figure 4 provides another source of visual information from which the reader draws according to need and the beginning reader may draw partially or completely from the additional source, in arbitrary order.

2. Goodman's model represents the beginning reader sampling from language redundancies, whereas Figure 4 represents the beginning reader optionally sampling from language redundancies and/or communicator redundancies.

3. Figure 3 presents only one mode, that is labelled graphic, and limits the child's selection, but Figure 4 with two modes, graphic and pictorial, allows assignation of either as duplicative, supportive, decorative or independent.

4. Although use of graphemic and pictorial information in Figure 4 is largely self-determined, the aforementioned modal qualities (i.e. duplicative, supportive) influence pictorial and graphemic selection more than only graphic selection as in Figure 3.

5. If the theories of selection are to determine modal usage, Figure 4 implies a complicated selection process. The selection process is determined by the child's knowledge and use of language as he decodes between graphemics and pictorials, within graphemics, and within pictorials.

There are indications from previous research as to the processing that children use in learning to read. Before examining that research, it is important to understand the instructional reading material that children frequently use. It is reading material in which children are expected to use their knowledge of and use of language to process graphemics and pictorials.

A Summary and Discussion of the Reading Process and Communication

The processing of reading material in communication involves two kinds of visual information. The processing involved in reading involves language as a child decodes it graphemically. Conventional instructional reading materials dictate that pictorial information be used in addition to graphemics. By implication, the inclusion of pictorials may transform the process of learning to read into: (a) a less systematic procedure, (b) a process involving more redundancies and increased discriminatory selection from them, (c) a process involving a lesser level of predictability of modal usage, (d) one requiring selection of more complex information which has

questionable control over purpose for usage.

The present researcher has acknowledged the inclusion of graphemic and pictorial information in the material prepared for the study. By using stories in three modes (graphemic, pictorial, graphemic & pictorial) readers will have an opportunity to demonstrate with which mode they perform the best. It is anticipated that high, medium, and low achievement readers will not all perform their best on the same mode, but that some may do their best on the combined mode and others on the graphemic or pictorial modes.

INSTRUCTIONAL READING MATERIAL

In discussing instructional reading material primary attention is on the Nelson Language Development Reading Program. Their first preprimer Funny Surprises was used to provide basic story material for the study. The use of visual information as suggested in those materials will be described and discussed.

Nelson Language Development Reading Program

The instructional reading materials used for the present study are based on three stories from the first preprimer Funny Surprises (Nelson Language Development Reading Program, 1970).

Suggested use of visual information. In Funny Surprises the purpose of pictorial information is to emphasize "the relationship of reading to thinking and language development" (Guidebook, 1970, p. v). More specifically the Guidebook states:

> The illustrations in the books have been designed as an integral part of the teaching program. They help convey the plot of the

> stories. They help children develop a deeper appreciation of the personalities and feelings of the characters and of the subtleties of the situations. They are both realistic and fanciful to suit the various moods of the stories. Their contents stimulate thinking and discussion, which are important parts of the Language Development Program. (Guidebook, 1970, p. v)

It is difficult to specify use for these pictures as they are intended for integration in the program. At best one can speculate according to suggestions made in the teacher's guidebook. Use of pictures appears to be primarily in duplicative ways. They often contain more information than the graphemics which lends them to supplementary and/or decorative uses. In the first part of Funny Surprises they are used independently. Most of the pictorials are considered by the writer to include duplication, supportive and decorative information all together. In many instances the pictorial information is a necessary addition to the page. The graphemic information is skeletal, using highly controlled vocabulary and sentence patterns within the stories. Without pictorial information many of the pages could convey little meaning. The skeletal graphemic information could often be considered decorative or supportive. This is particularly so in initial pages where only titles or superfluous graphemics are used. An example of superfluous information is the inclusion of pictorial and graphic information for the nursery rhyme "Jack and Jill" (pp. 4-5). This is the first selection in Funny Surprises. It is followed by two stories presented only pictorially with graphemic titles. Although language used to read the graphemics and then to read the pictorials may contain similarities, they could not be considered fully duplicative. The emphasis of the program is

on reading as language. In this beginning reading material, normal patterns of speech are to be encouraged to decode the pictorials, but normal patterns of speech are not included to be decoded in the graphemics. Children could be caught in this dichotomy if the question of oral language development or reading development is not clearly noted and described.

Chall (1967) found in researching basal reading programs that much of the guidance material aimed at getting the children to read and interpret the pictures (1967, p. 209). Chall also found that the teacher at the beginning of Grade I talked more than the child read, and asked the child to devote as much time to reading and to discussing pictures as to the reading of words (Chall, 1967, pp. 210-211). Even though ten years have lapsed since the publication of these findings, Funny Surprises suggests similar practises.

Chall arrived at these conclusions primarily after analyzing and evaluating guidebook suggestions for basal reader lessons. Pertinent information for the present study is that dealing with the directives used during guided reading.

The directive portion of Chall's schedule (1967, pp. 351-352) for analyzing a basal reader lesson was used to evaluate suggestions contained in the guidebook for Funny Surprises. For guided reading of the three stories used in the present study, the manual contained 74% nontextual directives, 28% directives to print as a conveyor of meaning, and 0% directives to print as code. Nontextual directives most often used were questions (a) directed to pictorials (that could

be answered from pictorials alone), (b) that could be answered by graphemics and pictorials, (c) to evoke evaluations, judgements, feelings, and anticipations. Directives to print as a conveyor of meaning were primarily questions asking the child to read to respond to specific literal questions (who, what, . . .).

If a child who is using these materials to learn to read has his attention constantly directed to the picture he may become dependent on the pictures, perhaps leading to a completely erroneous idea of what reading is about (Chall, 1967).

Summary and Discussion of Instructional Reading Material

The instructional reading materials used in beginning reading instruction contain many of the characteristics that have already been discussed in other sections. They contain representations of both language and communicator redundancies. The material suggests preoccupation with the latter while purportedly being occupied with the first. A child will independently select from the information. His selection and use of visual information will depend on his background knowledge of redundancies, the information available, controls over the inherent qualities in the information, and his ability to process reading material.

The three stories selected from Funny Surprises for the present study contained a number of similarities. These will be described in Chapter IV under preparation of materials. The intent of the study was to evaluate which modes of information beginning readers used in decoding. Recognition was paid to the graphics

according to assigned usage in the guidebook, but intended usages were not clearly presented. The Nelson Publishing Company did not intend stories to be separated graphemically and pictorially. As mentioned earlier in this section, they appear to be meant to supplement each other. Independently the graphemics often did not contain sufficient information to present a meaningful story. To control for this alternate forms of the story were developed. One form, the regular form, contained the original materials in a graphemic & pictorial mode, a graphemic mode and a pictorial mode. These latter two were graphemics and pictorials which were presented independent of one another. The second form, the modified form, contained materials which were changed to overcome inadequancies in the independent modes. In particular the graphemics often were not sufficient by themselves. Several minor pictorial and graphemic changes were made to insure stories contained the same characters and events in a continuous presentation. The goal of the modifications was to provide highly similar information with as few changes as necessary to avoid content distortion.

LEARNING TO READ

The following discussion will be in terms of recent research findings related to the use of visual information in learning to read.

Amongst reading educators, the use of pictorial and graphemic information in beginning reading instruction has stimulated much controversy. Research has unfortunately yielded few conclusive results to date. Pictures, as the modal exception to conventional (graphemic)

reading, have been investigated under many guises. Of primary importance in the current study are those investigations pertaining to the nature of and degree of usage of graphemic and pictorial information. Of specific relevance are studies that have been conducted by Samuels (1967, 1970, 1974), Biemiller (1970), Denburg (1977), and Montare, Elman and Cohen (1978).

Research has reported that dependency on visual information may be considered a first stage in learning to read (Biemiller, 1970; Watts and Nisbet, 1974; Denburg, 1977). As the child becomes proficient, he becomes more discriminating and increasingly selective in use of visual cues (Goodman, 1970). When difficulty is encountered by a fluent reader he will rely on graphic details for assistance (Watts and Nisbet, 1974).

Samuels (1967) reported the results of a series of studies that dealt with the effects of pictures upon kindergarten and first graders, during the initial learning of reading responses to printed words. In terms of attentional processes, he found pictures can act as distractors and thereby function to retard the acquisition of reading responses to accompany words (Samuels, 1967). Similarly, Braun (1969) and Harris (1967) replicated Samuels' studies and found subjects in the no-picture conditions learned sight vocabulary significantly faster than those in picture conditions.

The 1967 findings of Samuels were subjected to replication by Montare, Elman and Cohen (1978) who state that Samuels' studies incorporated "inadequate experimental controls to determine whether pictures were attended to" (1978, p. 269). Samuels in rebuttal (1978)

claims that his findings were successfully replicated by Braun (1969) and Harris (1967) and that the findings of Montare et al. (1978) were discussed by themselves within an inappropriate framework.

As the present study deals with beginning readers' usage of visual information, this controversy provides some valuable implications. First of all, Montare et al. (1978) point out that when evaluating attentional processes, the cue associations must be the same. Montare et al. (1978) claim that in Samuels' studies (1967) two types of associations (visual-visual and visual-auditory) were used by the groups, implying that comparisons between groups were not sound. Second, the measure of attentional processes is more likely to be appropriate if the stimulus context of the items is the same in both practise and test situations. In Samuels' studies (1967) three practise groups were established: no picture (used printed words only), simple picture (used printed words and simple pictures), and complex picture (used printed words and complex pictures). They practised identifying words according to their groups. During testing all groups were shown cards with only the printed words on them. Children who learned the words in the no picture group were exposed to identical stimulus contexts during testing. This could account for the superior results of the no picture group in the test situations. An appropriate experimental control would have been to test each achievement group in the same context as they practised in.

The present study used standard visual-auditory procedures to insure equivalence of cue association, and maintained equivalence of

stimulus context during the reading of and responding to performance measures. As a means of further control each achievement group used each of the modes to evaluate differences between group usage of modal information. The modes selected for this study were designed to use forced-choice and free-choice selection of information. Subjects used forced-choice selection on the graphemic mode and the pictorial mode, and free-choice selection on the graphemic & pictorial mode.

Both views, Montare et al. (1978) and Samuels (1967), present the picture as an active agent in learning to read. As an active agent it can affect the beginning reader at will. The view presented in this thesis is that pictorial information is a neutral agent which may be treated actively, passively, or in degrees between, by the beginning reader. Its use may be controlled through design and assignment, but is eventually used according to the needs of a reader. It is the reader who controls how the picture is to be used. He may interact actively with it, he may react passively to it, or combine both in some manner. He may prefer pictorials, he may not.

In contrast to Samuels (1967), Denburg (1977) treated pictorial information neither as "adjunct" (Samuels, 1968) nor as necessarily antagonistic, but instead as one among several sources of information upon which the beginner can draw in learning to read.

The interaction of pictorials and graphemics in reading instruction has been reported by Denburg (1977). She compared the information available to the beginning reader to that utilized by the skilled reader. It is her claim that skilled readers rely primarily on knowledge of language, and sample sparingly from the text.

Although the beginner demonstrates sensitivity to language constraints he is severely limited by lack of knowledge of graphemics (Denburg, 1977, p. 177). In her study pictorial information was provided as one additional source of information for the beginner to sample as he reads. Pictures were clearly designed as a supportive mode to assist if necessary in decoding words.

> Increasing the amount of available information through the medium of pictures was shown to have a strong facilitative effect on word identification in context and a smaller, though, significant facilitative effect on word learning. Further, there was clear evidence of an integration of partial information from both text and context, suggesting that the additional pictorial information encourages the beginner to use rather than bypass the incomplete information that he is able to extract from the printed page. (Denburg, 1977, p. 177)

There are three basic hypotheses which Denburg formulated:

1. There is an integration of information in word identification. The underlying assumption is that the more information provided from a variety of sources, the more likely a child will be to find and integrate enough information for a correct word response. The main concern is with the partial trade-off of graphemic and contextual information, with an emphasis on the interaction of initial level of graphemic skill and the contextual information available in different treatment conditions.

2. There is an interaction of graphemic with contextual information. It is suggested that where information from any one source is insufficient for correct word identification, available information from other sources will be used (although not necessarily at the expense of total information from the original source). For example, where graphemic skill is limited, contextual information will

be sought. Where contextual information is incomplete, the amount of graphemic information that can be apprehended from the printed word may be decisive in reaching criterion.

3. Some graphemic information will be overlooked in the process of information trade-off and there is an inverse relationship between the amount of graphemic information traded off and the amount of word learning that occurs. Only where graphemic information cannot be used will complete trade-off occur, resulting in no word learning. Many critics of picture use have assumed that whenever a picture is present, the printed word will be bypassed and thus not learned. This researcher's view of reading as an integration of partial information from various sources questions that view.

Denburg (1977) focused on reading as word identification in context, measured in terms of the number of sight words that are correctly identified when they are embedded in sentences. Her concern was with the facilitative effects of pictures on word identification. As such the pictorial information was carefully designed to call forth whatever limited graphemic knowledge the child was able to contribute (Denburg, 1977, p. 188).

The concern of this thesis is with the degree of pictorial usage as well as the nature of the usage. It is hypothesized that the proposed interaction of graphemic and pictorial information may lead in some cases to complete trade-off when the child is studied in a 'typical reading lesson.' According to Denburg, there is no word learning occurring during complete trade-off of information, so there would be no improvement in word identification and consequently in

reading generally. To this researcher it appears logical that once a child can identify a given set of graphics it should be possible to evaluate the mode from which he can draw most information during guided reading.

Biemiller studied first grade children who read orally from basal materials which included pictorial and graphemic information (1970). He investigated the development of use of graphic and contextual information, defining the latter as "information the reader brings to the situation (knowledge of syntactic constraints and of the subject matter) and information he has just read (immediately preceding context). Graphic information is information one has about letters alone and in series which help to identify words" (Biemiller, 1970, p. 76). From his research Biemiller concluded that there are three main phases of development:

1. The first is characterized by a predominant use of contextual information other than printed words.

2. The second phase is characterized by a quiet period during which children use more graphically constrained errors.

3. The third phase is characterized by an increase in co-occurrence of graphic and contextual constraints, and in most cases by a reduction of the frequency of non-response errors (p. 75).

He suggests that the early, context-using phase may represent an attempt by the child to "avoid" using graphic information as much as possible. Developmentally, most children appear to follow a pattern of learning, which is reflected in their oral reading.

This research suggests a basis on which to build a model for

the present study. Present concern is with children who have learned to read using conventional basal reading material. This material incorporated two modes of visual information, to which the reader has assigned his own usage. Developmentally, Biemiller (1970) described beginning readers as moving from concentration on non-graphemic information to graphemic, to co-usage of graphemic and non-graphemic information. Denburg (1967) postulated that there appeared to be an integration of information in word identification; where one of the modes of information was insufficient the other was used for more information; and that there was an inverse relationship between amount of information traded-off and occurrence of word learning. Figure 5 is presented as a final revision of a possible model for beginning reading.

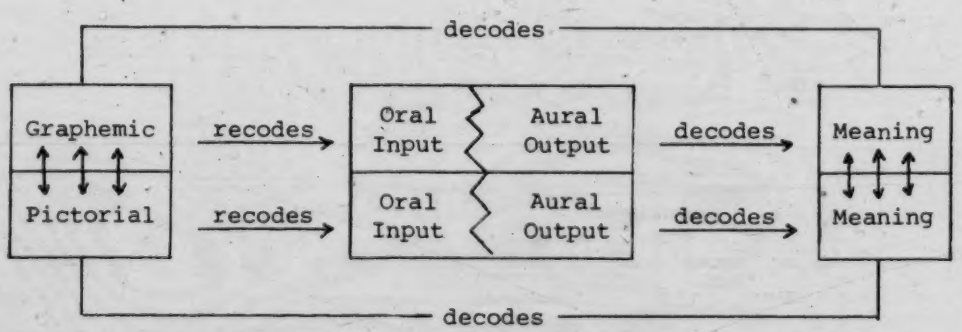


FIGURE 5

A FINAL REVISION OF A POSSIBLE MODEL FOR BEGINNING READING

This model is based on the definition of reading as a process by which the reader constructs to some degree, a message encoded in graphemic and/or pictorial language. The reconstruction of a meaningful

message is partially dependent on the modal information presented. It is also dependent on the usage the child assigns to the information. For the present study the materials are graphemically and pictorially presented. Intended usage of the visual information has not been specified. In this model one can see the possibility of interaction or trade-off of information between graphemic and pictorial modes. It is suggested that a beginning reader would use the information in a guided reading situation according to previous experience.

It is conceivable that in initial stages children directly decode from pictorials to meaning with little recoding. As they become increasingly aware of graphemic information they learn to sample from that mode as well. Suggested controls offered over information selected by the child are primarily those determining the child's expectations for reward and the amount of effort required. It appears that different achievement groups may have different modal dependencies. The following are possible examples of modal dependencies.

High reading achievers may use both graphemic and pictorial information, integrating information from both sources according to need. Medium reading achievers may use primarily graphemic information. Low reading achievers may use primarily pictorial information. Where knowledge of graphemics is insufficient to allow for any trade-off of information, word learning would not occur, and the readers would be forced to use pictorials. These differences in modal usage are hypothesized in this study.

In addition, it is hypothesized in this study that children

will prefer to use the modal information that they use most efficiently. Their liking or disliking pictures is not the concern, but rather it is whether beginning readers prefer to use pictorial information rather than graphemic information when each is presented in isolation or the two together in combination.

Inherently pictorial information is arousing. Children may be drawn to it. They enjoy looking at pictures and talking about them. They like pictures. For children that learn to make good use of both graphemics and pictorial constraints this liking of pictures may not be of utmost importance in reading. For children that continue to use predominantly pictorial information, the preferred mode may be of utmost importance in learning to read.

Vernon (1953) studied pictures and comprehension. She noted that in several cases children reacted emotionally to pictorials which might affect attitudes towards the problems described in the text.

Litcher and Johnson (1969) used pictures and graphemics in basals to affect attitude change.

Of particular interest with regard to the present study is a study done by Samuels, Biesmock, and Terry (1974). They investigated the effect of pictures on attitude toward stories presented. The purpose was to determine whether illustrations would influence Grade II students' attitude toward stories they read. Three stories were presented in slide presentations. They were illustrated using color pictures, outline pictures, and no pictures at all. Attitude toward the story as a function of the three picture treatments was assessed using a series of questions concerning story preference. Samuels,

Biesmock, and Terry (1974) found illustrated stories were preferred to non-illustrated stories, color illustrations were preferred to outline sketches. They also found poorer readers were more negative toward non-illustrated stories than better readers. An assumption was made that asking a student which story he preferred reflected which picture treatment was preferred.

The present investigation tested students' story preferences and modal preferences in order to examine agreement between the two. This was not done by Samuels, Biesmock, and Terry (1974).

Summary and Discussion of Learning to Read

The research findings discussed in this section deal exclusively with investigations into the use of visual information in learning to read. Pictorial information has been described as an active agent operating on a passive recipient—the beginning reader (Samuels, 1967). Denburg (1977) treated pictorial information as neither adjunct nor antagonistic. This neutral view allows the child to be the active or passive agent using the information as need be. This involves sampling some or all of the modal information presented. The developmental stages presented by Biemiller (1970) were seen by this researcher as logically related to a progression in beginning reader development when reading silently for information. A final revision of a possible model for beginning reading incorporated suggestions of both Biemiller (1970) and Denburg (1977). Modal preference was seen as having influence over a beginning reader's use of visual information. These research findings were used in formulating the research hypotheses for the present study.

MODAL DEPENDENCE OF BEGINNING READERS AS A PRIMARY CONCERN

In terms of communication literature has indicated that pre-primer materials present both language and modal redundancies (Schramm, 1954; Arnheim, 1974; Richards, 1974). The graphic usages are indiscriminately defined according to specific roles that they may be expected to play in beginning reading. Moreover, little attempt has been made to control pictorial information through assignment or designation. Bearing these two points in mind, examination of theories of modal selection (Schramm, 1954; Samuels, 1970) indicated that use of pictorial information may attract initial attention and maintain hold of the child's attention in beginning reading. In actually processing the graphics in a reading lesson, children become aware of expected rewards and the amount of effort required. They learn to process graphemic and pictorial information using knowledge of language and of communicator's redundancies. Along with rewards and effort, that knowledge assists them in developing strategies. Research indicated possible interaction effects (Denburg, 1974), and also possible developmental progression in the use of visual information (Biemiller, 1970). Research has not been concerned with the degree of interaction in the development of reading abilities, or with the nature of the development (Richards, 1974).

The purpose of this study is to investigate the degree to which children, who are near the end of Grade I, depend on pictorial and graphemic, only pictorial, and only graphemic information in beginning reading, making the investigation of modal dependencies a

primary concern. In addition, the study will attempt to determine whether the children prefer using the same mode of information as that on which they demonstrate dependence.

Chapter IV will discuss the sample selection, the pilot study, material preparation, the research hypotheses stated in null terms, and the main study.

Chapter IV

DESIGN AND PROCEDURE

This chapter includes a description of the organization prior to and during the main investigation. Included are descriptions of the preparation of materials, the sample, the pilot study, validity and reliability concerns, research hypotheses stated in null form, and the procedures used in the main study.

THE PREPARATION OF MATERIALS

Selection of Materials

Upon the recommendation of the Edmonton Public School Board (EPSB) six of their reading specialists were asked to name the four basal reading series most commonly used in Edmonton Public Schools. The list of basal reading materials which was compiled included: Gage Language Experience Reading Program (Gage, 1970), Canadian Reading Development Series (Copp-Clark, 1967), Language Patterns (Holt, Rinehart and Winston, 1967), Nelson Language Development Reading Program (Nelson, 1970) and Reading 360 (Ginn, 1970). These five series were numbered and a random selection was made. The Nelson Language Development Reading Program was so chosen.

The emphasis of this study is on the beginning reader. That is why Funny Surprises, the first preprimer of the series, was used. Funny Surprises is the first reader of the series in which a child encounters graphemics and pictorials. To evaluate what the beginning

reader does when he encounters the graphemic mode and the pictorial mode, it was necessary to present several different stories using these modes.

Three Phases of Evaluation of the Stories

In the first stage of evaluation the stories in Funny Surprises were informally surveyed for similarities graphemically and pictorially. Special attention was focused on the following, quality and quantity of each story, story lengths, proportion of pictorials to graphemics, pictorial style, coloring and story characters. Three stories considered to be of high similarity were selected for a more formal evaluation and confirmation of similarities.

In the second phase of evaluation the three stories were analyzed by the researcher to assess their detailed typographic and graphic similarities. A summary of the researcher's analysis is found in Tables 2 and 3.

The third phase of evaluation was completed by five judges who rated the stories according to a questionnaire that was provided. This evaluation was done following the development of the first set of materials in the modified form. Results of the evaluation indicated modified stories were highly similar and the regular stories were also highly similar. Details of the evaluation can be found later in this chapter under the section entitled Inter-Story Rating. A copy of the questionnaire can be found in Appendix A.

Printing characteristics as listed for the second and third phases of evaluation were specified according to two concerns, the legibility and the redundancies in the material (Tinker, 1964; Watts,

TABLE 2

RESEARCHER ANALYSIS OF THE STORIES:
A. TYPOGRAPHIC ELEMENTS

Typographic Elements	Story		
	Jump	Something New	The New Fish
Pages (pg.) T = Title pg. Gr = Graphemic Pic = Pictorial	4 pgs. = 1 pg. (T+Pic+Gr) 3 pgs. (Pic+Gr)	5 pgs. = 1 pg. (T) 4 pgs. (Pic+Gr)	5 pgs. = 1 pg. (T) 4 pgs. (Pic+Gr) 1 pg. (Pic)
Paper	Crown Offset (70 Bond) ⟶ same		
Black and White Space	Single spaces between sentences. Double spaces between a quotation and a sentence.		
Margins	Spaces considered common as margins between story pgs.		
Top/Bottom	1/2.5 cm	1/2.5 cm	1/1.5 cm
Left/Right	1.5/1 cm	1/2.5 cm	2.5/1.3 cm
Graphic Layout Above Below	Approximate proportions and positions of pictorials on a page. PIC / gr (4 pgs.)	PIC / gr (4 pgs.) PIC (1 pg.)	PIC / gr (3 pgs.) PIC (2 pgs.)
Upper and Lower Case Letters	Title = both T = only the first letter ⟶ same is upper case Story = Upper case letters for names and the first letter in each new sentence.		
Type	Style, color, and intensity approximately the same. Upper case size 5 x 3 (mm) Lower case size 3 x 3 (mm) 16 pica ⟶		
Pictures	Artist, style, colors ⟶ same		
Space per pg. Largest	240 sq cm	236 sq cm	305 sq cm
Smallest	189 sq cm	152 sq cm	135 sq cm

TABLE 3

RESEARCHER ANALYSIS OF THE STORIES:
B. GRAPHIC ELEMENTS

Graphic Elements	Story		
	Jump	Something New	The New Fish
Lines per pg. Average = Ave.	2	2	2
Words per pg. (Ave.)	9	10	12
Words per line (Ave.)	4	5	5
Pictorials (Total in Story)	5	5	5
Vocabulary Difficulty	Nelson Basic Vocabulary for Funny Surprises. All words included in Lorge Thorndike list for Grade I.		
Syllables per pg. (Ave.)	11	12	13
Sentences per pg. (Ave.)	3	2	2
Types	Simple sentences and some embedded (adj.)		
Punctuation	Periods, Exclamations, Quotations, Commas ⟶		Apostrophe noting singular possessive
Main Ideas			
Gr. Stated	One per pg. of graphemic information (4 per story)		
Pic. Stated	Limited by number of pictorials (5 per story)		
Plot	Simple construction, introduction followed by events follow conclusion.		
Familiarity of Subject			
Setting	school	home	school
Characters	peers, pets	family, pets	peers, pets
Outcome	humorous ⟶	same	comfortable
Motivational Appeal	content based ⟶		same

Nisbet, and Shaw, 1969; Goodman, 1970).

Development of Regular and Modified Forms of the Stories

The stories "Jump," "Something New" and "The New Fish" were considered by the researcher analysis to be highly similar, and development of the first sets of regular and modified forms was undertaken.

Stories in the Nelson Language Development Reading Program are not designed by their publishers to use the pictorial and the graphemic information separately. The pictorial and graphemic information are to be used primarily together to supplement one another. It was necessary for the study to prepare graphemic material in isolation from pictorial material and vice versa. In so doing the stories were mutilated which was not the publisher's intent. The use beyond original intent meant that another form of material devised to present graphemics and pictorials separately was needed. Two forms of material were developed.

The regular form. This form of material used the original stories from the reader. Three modes of the regular form of the stories were developed:

1. The graphemic & pictorial mode which left the story in the reader untouched. Photographic plates of the regular form of the three stories in the graphemic & pictorial mode can be seen in Appendix B.

2. The graphemic mode which was the graphemic portion from each story left untouched but with pictorials blocked out.

3. The pictorial mode which was the pictorial portion from each story left untouched, but with graphemics blocked out. How the blocking out was done will be discussed under the section, Making the Changes in the Stories.

The modified form. This form of material used modified materials based on the stories from the reader. The modifications will be discussed under Making the Changes in the Stories. The three modes of the modified form of the stories to be developed were as follows: (1) the graphemic & pictorial mode, (2) the graphemic mode, (3) the pictorial mode. In each of the three, appropriate pictorial and/or graphemic revisions were dry-mounted over the originals. Photographic plates showing the revisions can be seen in Appendix C.

Making the changes in the stories.

1. Determining the Changes. In modifying the stories 'standard' information had to be included in each mode. This information consisted of the main characters, actions, and story continuity. The concern was with the pictorial mode and the graphemic mode carrying duplicative information. The pictorials did carry the information, but the graphemics often did not. The following changes were determined necessary:

a. Graphemic Changes

"Jump" pages 23, 24, 25, 26

"Something New" pages 37, 38, 39

"The New Fish" page 42.

b. Pictorial Changes

"The New Fish" page 43, 44.

All of these changes can be seen in Appendix C.

2. How the Changes were Made. Once changes were decided upon the standard information missing was to be inserted. All revisions were based on the researcher's analysis discussed earlier. They were made as follows:

a. a pictorial on page 44 of "The New Fish" was deleted, and on page 43 was added to insure a continuous flow of ideas in the pictorial mode.

b. graphemic changes used only words in the basic word list for Funny Surprises and the Lorge Thorndike Word List for Grade I students. Average sentence length remained the same as did sentence patterns.

The same method was used to change all the stories. Consultation with Printing Services and the Audio-Visual Department at the University of Alberta provided suggestions for making these changes but at the same time maintaining as much similarity as possible. In regular form the graphemic & pictorial mode remained unchanged, but in the graphemic mode the pictorial information was covered with Crown Offset (70 Bond) paper. The same kind of paper was used in all changes. This was dry-mounted on top of original material. Similarly, in the pictorial mode the graphemic information was covered with dry-mount and Crown Offset paper. In modified form, pictorial and graphemic changes were made on this same kind of paper and dry-mounted over the original information. Graphemic changes were first set out on the paper in Letraset (Helvetica Light, 16 p.) and then professionally

printed for use. These were then dry-mounted over the original graphemics. Pictorial changes, because they only involved one major revision, were hand-drawn in non-eraseable crayon, cut and affixed to the original. Photographic examples of the pictorial mode and the graphemic mode can be seen in Appendix D.

In all there were six sets of reading material to be prepared. These were: the regular graphemic & pictorial, regular graphemic, regular pictorial; modified graphemic & pictorial, modified graphemic, and modified pictorial. Following the completion of the first set of both of the regular and modified forms of the graphemic & pictorial mode the third phase of evaluation, the inter-story rating, was done. The others were completed after the inter-story rating indicated they were highly similar.

Inter-story rating. After completion of the development of the six sets of readers the similarity of the contents of the stories in the regular and modified mode was evaluated by five teachers all of whom had taught Grade I reading. Using the same criteria upon which the initial researcher analysis and the story revisions were based, the five teachers rated the stories according to similarity or dissimilarity in typographic and graphic elements. A copy of the questionnaire is included in Appendix A. They were provided with a questionnaire which listed each element to be rated on a five point scale from very low similarity to low, medium, high or very high. Regular stories were rated one day, and modified stories the next day to prevent form comparisons rather than the intended story comparisons.

According to Cronbach (1949, p. 510) there is an 80% chance of a five judge rating being reliable. Because of the remaining 20% chance of unreliability, judges were asked to specify questions they felt unqualified to answer, and to explain ratings of very low or low. A summary of the ratings is found in Table 4.

The regular form of the three stories was rated as highly similar by the judges (average 65.5%). The modified form was rated as very highly similar by the judges (average 78%). The judges were asked to explain ratings of low and very low on the questionnaire. One rating of 30% on number of word parts per page in the modified form was explained as due to "The New Fish" in which there are fewer pages but more graphemics as noted in the initial analysis. No other comments were made.

Performance questions. One question per story page was devised to measure student performance. The questions were the same for use with the three modes. Each question, as a 'rote' question, required recall of a story detail. Students recorded responses on their own record sheets. The questions and the range of possibly acceptable responses were discussed with and revised until agreement was reached among the researcher and the two graduate students enrolled in the Master of Education course, specializing in Reading. The difficulty of the questions and a range of acceptable responses were examined in the pilot study and will be discussed further there. The questions asked and acceptable responses are included in Table 5.

TABLE 4

SUMMARY OF JUDGES' RATINGS ON THE REGULAR AND MODIFIED STORY FORMS

Similarity of Typographic Elements	3 Stories of Regular Form		3 Stories of Modified Form	
	Average	Rating[a]	Average	Rating[a]
1. Paper	100	VH	95	VH
2. Black and White Space	70	H	65	H
3. Graphic Layout	85	VH	95	VH
4. Upper and Lower Case Letters	75	H	85	VH
5. Type	80	VH	80	VH
6. Pictures	80	VH	80	VH
Graphic Elements				
1. Pages	75	H	75	H
2. Lines	60	H	75	H
3. Length of Lines	60	H	75	H
4. Words	50	M	80	VH
5. Pictures	70	H	75	H
6. Word Parts	55	M	30	L
7. Complexity of Vocabulary	50	M	70	H
8. Complexity of Sentences	60	H	75	H
9. Main Ideas (Graphically per pg.)	50	M	75	H
10. Main Ideas (Pictorially per pg.)	65	H	70	H
11. Complexity of Plot	60	H	60	H
12. Familiarity of Theme	85	VH	85	VH
13. Motivational Appeal	80	VH	80	VH
Average	65.5%	H	78%	H

[a]Rating is translated according to the following cut-off points: VH = 80-100, H = 60-79, M = 40-59, L = 20-39, VL = 0-19.

TABLE 5

PERFORMANCE QUESTIONS AND ACCEPTABLE RESPONSES FOR EACH OF THE STORIES

Stories	Questions	Responses[a]
Jump	1. What can Jack and Jill do?	jump, skip, jump (the) rope
	2. Who else can jump?	Sandy, (the) dog
	3. What can Candy do?	jump, jump to (the) table, jump in school
	4. Who is funny?	Candy, (the) cat, (the) kitten
Something New	1. What new thing does Jack see?	(a) fish (in a bag), (a) goldfish
	2. Who comes to see the fish?	Candy, (the) cat, (the) kitten
	3. What did Candy do?	surprised (the) fish, put (a) paw in (the) bowl, get (the) fish
	4. Who surprised Candy?	(the) fish, (the) goldfish
The New Fish	1. Who has something new?	Ted, (that) boy
	2. What is Ted's fish like?	funny, black
	3. Who comes to see Ted draw?	Jack, Jill, Jack and Jill, girl, boy, girl and boy
	4. What can Ted draw?	(a) pet, (a) turtle

[a]Articles were not mandatory for a response to be acceptable.

Preference questions. Subjects were asked to respond to questions regarding feeling toward each story. Samuels (1974) used a similar set of questions to investigate the effect of pictures on student attitudes toward presented stories. The first day children were asked the questions: "Did you like the story? (yes, no)," and "How much did you like the story? (a lot, a little, not at all)." The second day they were asked the same two questions, briefly shown the two stories they had read, and asked the question "Did you like the story today better than the story yesterday? (yes, no)." The third day they were asked the first two questions, briefly shown the three stories they had read, noting both story and modes, and then asked the questions: "Which story did you like the best, second best, and least of all? (Jump, Something New, The New Fish)," and "Which kind of story did you like best, second best, and least of all? (pictures and print, print, pictures)."

Record sheets. Responses to both performance questions and preference questions were recorded by the subjects on their own record sheets. Each day each subject received a record sheet which contained appropriate performance questions and preference questions (see Appendix E). In all, nine record sheets were used.

1. "Jump" performance questions which were standardized for the three modes, and preference questions for day 1.

2. "Jump" performance questions, and preference questions for day 2.

3. "Jump" performance questions, and preference questions for day 3.

4. "Something New" performance questions, and preference questions for day 1.

5. "Something New" performance questions, and preference questions for day 2.

6. "Something New" performance questions, and preference questions for day 3.

7. "The New Fish" performance questions, and preference questions for day 1.

8. "The New Fish" performance questions, and preference questions for day 2.

9. "The New Fish" performance questions, and preference questions for day 3.

THE SAMPLE

One hundred students were assigned to the researcher by the Director of Research and Evaluation of the E.P.S.B. for the pilot testing and for the matching of students for sex and reading achievement for the main study.

This sample population of grade one students attended four schools that were widely separated geographically from each other, and were considered representative of the middle class population of Grade I's in the E.P.S.B. by their Director of Research and Evaluation. The total population of Grade I was 4,894 in 1977, and of that total a sample population of 100 students, 25 for the pilot study and 75 for the main study were selected. Additional details can be found in those two relevant sections.

THE PILOT STUDY

The Purposes

The pilot study was undertaken to determine the efficacy and appropriateness of the materials and procedures which were planned for the main study. It was specifically intended to evaluate performance questions and responses; to evaluate the preference questions; and to indicate possible trends of a further investigation.

The Procedure

In mid April of 1977, 25 first grade students from the E.P.S.B. participated in the three day pilot study. Initial screening indicated one child, a recent transfer, had already used the Nelson Language Development Reading Program. That child was excluded from the sample. In order to participate in the pilot the remaining students had to have been rated as 'beginning readers' by their teachers. It was suggested that the teachers use standardized reading test scores to rank the children, and that the children be able to read from preprimer level reading material. According to their reading achievement the students were then rank ordered by their teachers. Three groups of eight children each were established by the researcher. The high reading achievers were those who could read a preprimer at or beyond an independent level, the medium reading achievers were those who could read a preprimer at instructional level, and the low reading achievers were those who could read but would read a preprimer at frustration level at times. Each group of eight were randomly divided into two

sub-groups. One sub-group was to use the regular form and one was to use the modified form of the materials. This was seen as a viable method of organization in that the tasks were completed independently with minimal opportunity to interact with other group members. The day prior to the beginning of the data collection, the researcher met with the 24 students for a general orientation meeting. They were briefed for the three reading lessons that were to follow on subsequent days. The lessons are presented in Appendix F.

A repeated measures research design was used (see Figure 6). Reading achivement groups, modes of presentation, and times were counterbalanced, so that each subject was to receive all modes of treatment and thus serve as his own control. (This design will be discussed more fully in the section entitled Procedures Used in the Main Study later in this chapter.) The three modal treatment conditions were taken on three successive days. Each group had the treatments in a different order. Several of the cells were adjusted at the last minute to accommodate special time-tabling.

The Findings and Suggested Revisions

The efficacy and appropriateness of the materials and procedures appeared adequate for use in the main study. Evaluation of performance questions and responses verified the appropriateness of questions and responses as they were initially established. The questions posed were judged as appropriate by reading specialists prior to the pilot study. Responses of students to the questions during the pilot indicated all questions were of similar difficulty (see Tables 6 and 7).

Time Slots	Day 1 (Achieve./Form)	Day 2	Day 3
	Mode/Story		
1	1R A_1B_1	3M A_3B_1	2R A_2B_1
2	1M A_1B_1	3R A_3B_1	2M A_2B_1
3	2R A_3B_2	2M A_1B_3	3R A_1B_2
4	3M A_3B_2	1R A_2B_2	1M A_3B_3
5	3R A_2B_3	1M A_2B_2	1R A_3B_3
6	2M A_2B_3	2R A_1B_3	3M A_1B_2

Achievement Groups N = 4

1 = High
2 = Medium
3 = Low

Form

R = Regular
M = Modified

Mode

A_1 = Graphemics & pictorial
A_2 = Graphemics
A_3 = Pictorial

Story

B_1 = "Jump"
B_2 = "Something New"
B_3 = "The New Fish"

FIGURE 6

REPEATED MEASURES RESEARCH DESIGN
FOR THE STUDY

TABLE 6

PERCENTAGE OF STORY QUESTIONS ANSWERED CORRECTLY
BY READING ACHIEVEMENT GROUPS IN PILOT STUDY

	Reading Achievers			
Stories	High	Medium	Low	Average
Jump	91%	81%	66%	79%
Something New	88%	84%	69%	80%
The New Fish	94%	81%	56%	77%
Average	91%	82%	63%	

TABLE 7

PERCENTAGE OF MODAL QUESTIONS ANSWERED CORRECTLY
BY READING ACHIEVEMENT GROUPS IN PILOT STUDY

	Reading Achievers			
Modes	High	Medium	Low	Average
Graphemic & Pictorial	91%	81%	69%	80%
Graphemic	88%	81%	56%	75%
Pictorial	94%	84%	66%	81%
Average	91%	82%	63%	

As indicated in Table 6, average number of correct responses for the questions ranged from 77% on "The New Fish," to 79% on "Jump" to 80% on "Something New."

Table 7 indicates that the average number of correct responses for the questions ranged from 75% on the graphic mode to 80% on the graphemic & pictorial mode to 81% on the pictorial mode.

Tables 6 and 7 also indicate the differences between the three achievement group scores on the three stories and the modes, demonstrating that the high group scored highest, the medium group next, and the low group lowest. The differences in achievement group scores are considered as confirmation of similar difficulty of questions. Responses to the questions were rated according to both their appropriateness and similarity to those responses set prior to the pilot. Sample responses were considered appropriate if they were both semantically and syntactically accurate. There were no unanticipated responses provided by the sample. This was interpreted as confirmation of the validity of the responses.

Evaluation of preference questions was also a consideration in the pilot study. On the basis of Samuel's (1974) study of student preference for pictures, the researcher had assumed expression of story preference would be the same as expression of modal preference. That the sample would predictably indicate one story preference which would be the same as modal preference provided the rationale for the preference questions. Informal records were kept denoting reasons for story preferences. Three children out of 24 acknowledged mode as a factor in the preferred choice, invalidating the use of the questions

as they were. The children's comments were: "I really liked the pictures!"; "The pictures are neat!"; "It's sure hard to read just words!". Therefore, it was decided to include a question specifically asking for modal preference in the main study.

For statistical analysis of performance scores, a two way analysis of variance was used. Figure 7 compares mean scores for the achievement groups using each of the three modes. The primary difference indicated is in the use of the three modes by the low achievement readers. Their performance using the graphemic mode was lower than when using the other modes.

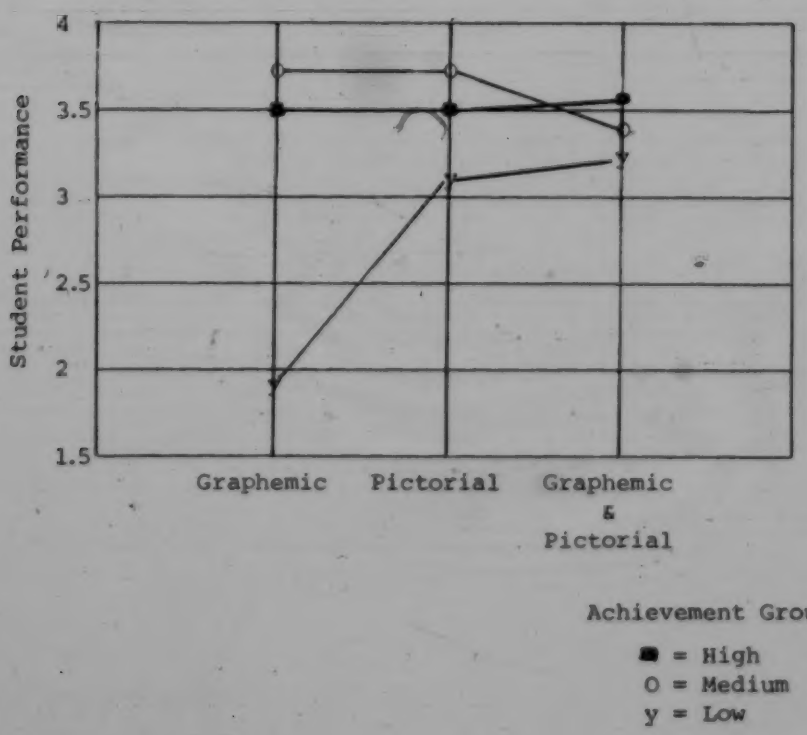


FIGURE 7

COMPARISON OF GROUP MEANS ON THE TWO WAY ANALYSIS OF VARIANCE

The clustering of the other scores may have been caused by a number of factors. The most pertinent are the following:

1. The screening of the sample for the achievement groups. A more objective means of screening not totally dependent on teacher ratings would insure more accurate identification of achievement groups. The Metropolitan Readiness Test scores were used in the main study to establish initial groups.

2. The research design counterbalanced initially as in Figure 6 should have been more rigidly adhered to to insure treatment controls. The last minute cell adjustments lessened the extent of the control achieved and such adjustments were not allowed in the main study.

VALIDITY AND RELIABILITY CONCERNS

Inevitably in a study such as this, questions of appropriateness of materials and measures arise. Essentially two concerns have to be addressed: first the degree of story similarity and second the appropriateness of the performance measure. These will be discussed below.

Degree of Story Similarity

The stories were taken from a preprimer authorized by the Alberta Department of Education for use in Grade I reading instruction. This insured that there would be similarities among the stories.

To more specifically evaluate the similarity between the stories three phases of evaluation were undertaken: the informal survey, the researcher's analysis, the inter-story ratings. For more

details check the sections entitled Three Phases of Evaluation of the Stories, and Inter-Story Ratings. The inter-rater reliability of the stories in regular form was 65.5% and in the modified form 78%.

Appropriateness of Performance Questions

Questions asked to evaluate modal performance were modelled after those suggested in the Guidebook for Funny Surprises. They were considered typical of questions teachers ask during silent reading lessons. One question was formulated for each story page. Considering the amount of information available on each page, this was all that seemed appropriate. (For more information see the section entitled Performance Questions.) The questions were discussed in terms of similarity across pages and in appropriateness for the page. Appropriateness of responses was discussed as well as other answers that could be anticipated with modal differences. The revised questions were seen as similar within each story and between the three stories. The answers were considered suitable, but were to be further examined after the pilot study.

Following the pilot study the performance questions and responses were analyzed. More detailed information can be seen under the section The Pilot Study. The questions appeared to have been clearly understood and the scores achieved discriminated clearly between achievement groups. Some of the children provided answers which were logical possibilities, and these were incorporated into the scoring key.

THE RESEARCH AND NULL HYPOTHESES

The research hypotheses as stated in Chapter I are restated below in null form for testing.

Research Hypothesis #1

Performance scores on regular and modified forms will not be significantly different for (a) high reading achievers (HRGP = HMGP, HRG = HMG, HRP = HMP); (b) medium reading achievers (MRGP = MMGP, MRG = MMG, MRP = MMP), (c) low reading achievers (LRGP = LMGP, LRG = LMG, LRP = LMP).

Null Hypothesis #1

There is no statistically significant difference between performance scores on the regular and modified forms for (a) high reading achievers, (b) medium reading achievers, (c) low reading achievers.

Research Hypothesis #2

Reading performance scores of low achievement readers will be higher when reading in the pictorial mode than in (a) the graphemic & pictorial mode, or (b) graphemic mode (LRP-LMP > LRGP-LMGP, LRP-LMP > LRG-LMG).

Null Hypothesis #2

There is no statistically significant difference between the reading performance scores of low achievement readers when reading in the pictorial mode than in (a) the graphemic & pictorial mode, or (b) the graphemic mode.

Research Hypothesis #3

Reading performance scores of medium achievement readers will be higher when reading in the graphemic & pictorial mode than in (a) the pictorial mode, or (b) graphemic mode (MRGP-MMGP > MRP-MMP, MRGP-MMGP > MRG-MMG).

Null Hypothesis #3

There is not statistically significant difference between reading performance scores of medium achievement readers when reading in the graphemic & pictorial mode than in (a) the pictorial mode, or (b) the graphemic mode.

Research Hypothesis #4

Reading performance scores of high achievement readers will be higher when reading in the graphemic mode than in (a) the graphemic & pictorial mode, or (b) pictorial mode (HRG-HMG > HRGP-HMGP, HRG-HMG > HRP-HMP).

Null Hypothesis #4

There is no statistically significant difference between reading performance scores of high achievement readers when reading in the graphemic mode than in (a) the graphemic & pictorial mode, or (b) the pictorial mode.

Research Hypothesis #5

High achievement readers will have higher reading performance scores than (a) medium achievement readers or (b) low achievement readers on each of the three story modes (a > b, a > c).

Null Hypothesis #5

There is no statistically significant difference between reading performance scores of high achievement readers than (a) medium achievement readers, or (b) low achievement readers on each of the three modes.

Research Hypothesis #6

Reading achievement groups (high, medium and low) will prefer the modes in which their reading performance scores were the highest.

Null Hypothesis #6

High, medium, and low achievement groups will not prefer the modes in which their reading performance scores were the highest.

THE MAIN STUDY

To investigate the degree to which children, who are near the end of first grade, depend on pictorial & graphemic, only pictorial, and only graphemic information in beginning reading and to attempt to determine whether the children prefer using the same mode of information as that on which they demonstrate dependence, the following study was undertaken during the last week of April and the first week of May, 1977. Selection of student groups, research design, and research procedures will be described here.

Student Group Selection

As previously indicated the sample of Grade I students was suggested by the E.P.S.B. as representative of their Grade I middle class population. Seventy-five students from three schools were

selected. As in the pilot study, initial screening removed all children who had had previous exposure to the Nelson preprimer Funny Surprises. Next, the cumulative records of the subjects were checked for those who had taken the Metropolitan Readiness Test (M.R.T.) the previous fall. Children who had not taken the test, and children who had scored beyond the ninety-six percentile or below the fifth percentile were not included in the study. The concern in so limiting the participants was to insure that the scores on the four question performance measure would not be colored by a number of extremely high or extremely low scores which could predictably happen by using candidates with M.R.T. scores within the extreme range.

Fifty-three remaining children were assigned to reading groups on the basis of their M.R.T. percentile scores. High reader scores were between 95-76 percentiles, medium reader scores were between 75-25 percentiles, and low reader scores were between 24-5 percentiles.

To verify the accuracy of these group placements, classroom teachers were asked to rank order the students from highest reading achiever to lowest. They were asked to rank the students according to independent reading ability, and ability to answer questions requiring recall of details. The teacher rankings were compared with rankings based on the M.R.T. Children with discrepant rankings were not included in the study. Equal numbers of girls and boys were included in each achievement group. Groups were matched for sex and reading achievement. Of the 36 remaining subjects there were 18 boys and 18 girls. There were 12 high reading achievers, 12 medium reading achievers, and 12 low reading achievers. By random selection of names

from a hat, each reading achievement group was sub-divided to create two sub-groups. For example, a group of six high reading achievers to use regular form materials, and a group of six high reading achievers to use modified form materials. The division of groups and sub-groups is illustrated in Figure 8.

Research Design

A repeated measures research design was used for this study. The advantage of using this design was that each subject received all treatment conditions and thus served as his own control. The treatment conditions were: a graphemic & pictorial condition as usually found in beginning readers, a graphemic only condition, and a pictorial only condition.

The three treatment conditions were taken on successive days. This was repeated twice with half of the sample each time during two consecutive weeks. As seen in Figure 6, each group received the treatments in a different order.

Each picture-story combination is different for each cell. Thus, there was complete counterbalancing of treatments with stories for each day and each group of subjects. By chance B_1 occurs in the first cells of the design. That is the effect of counterbalancing achievement group, form, and mode. Even though "Jump" does occur in the first time slots, the factors accompanying it are different. These factors in effect should create different treatments.

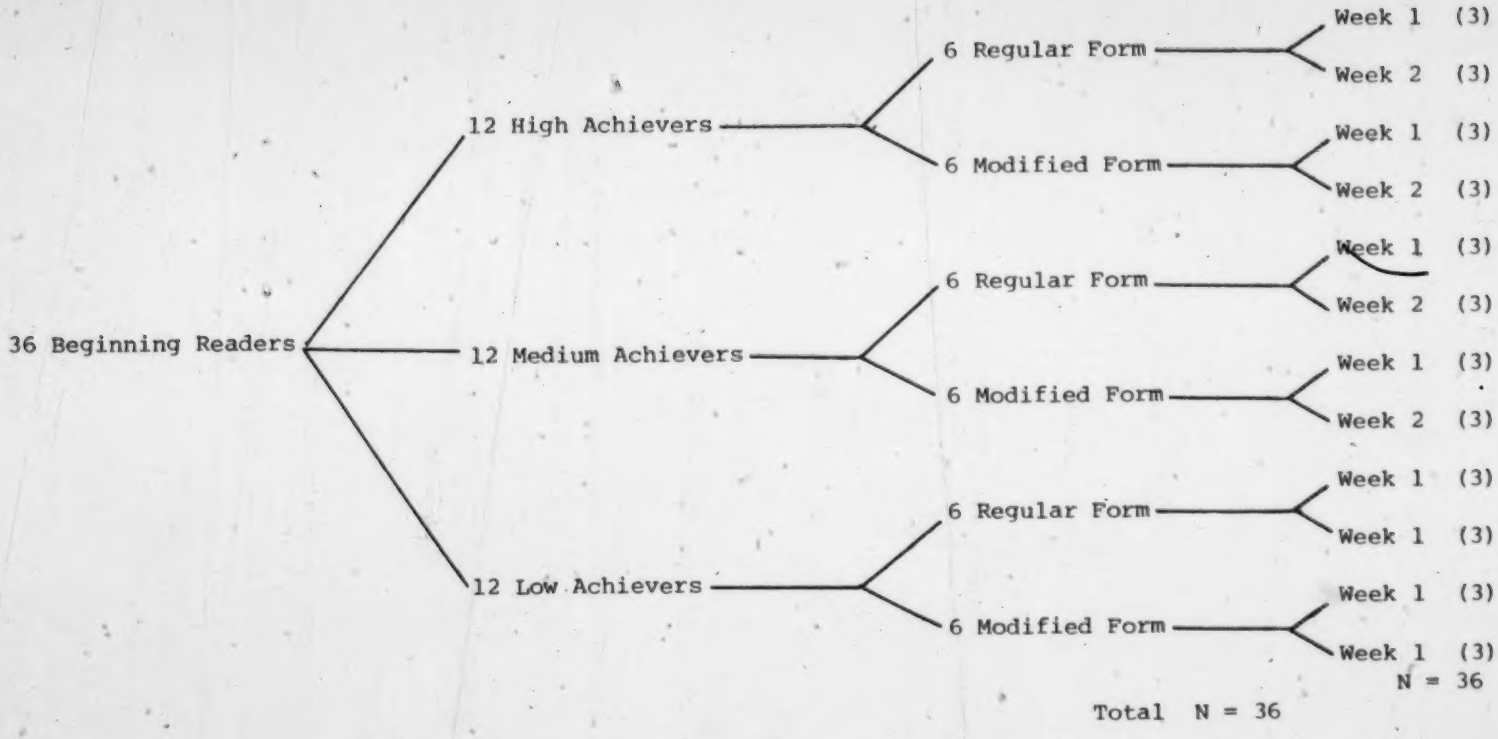


FIGURE 8

DIVISION OF SAMPLE INTO GROUPS AND SUB-GROUPS

Research Procedures

The schedule as outlined in Appendix F was repeated twice to accommodate the 36 subjects in the sample. Each of the weeks there was a general orientation session the day prior to the first lesson. This session allowed subjects and researcher a chance to meet, and make up name cards to use during the lessons. The first lesson on the day after the orientation was begun with an introduction to the study. The subjects were told of the proceedings of the three lessons to come. Each day similar activities were planned. These activities involved (a) a reading lesson and (b) preference questions about the subjects' feelings towards the story.

The reading lessons. One basic lesson plan was developed for each of the three stories. The basic plan remained constant with minimal adaptations for each story in the three regular modes and the three modified modes. These lesson plans are in Appendix F. The modified conventional basal lesson plan which was used is discussed here.

1. Background was developed through pictorial and graphemic introduction of characters and story title. First these were rehearsed to insure retention and recognition in the presented mode. This was followed by a verbal description of the setting of the story.

2. The story was read by the appropriate achievement group using the form indicated, at the time, and in the mode scheduled. Each group used the materials in the same way. A group was asked to read a page to answer a question that was posed. Students wrote their answers independently on their own record sheets. After

each one had recorded his response one child was asked to read his aloud. If it was acceptable, the researcher said "Thank you." If it was unacceptable the researcher provided an acceptable response. Before going on to read the next page, the researcher re-read aloud the story line for the page. This was a way of insuring that all groups received basic story information. This same sequence was followed for subsequent pages. If a child was having difficulty reading, spelling or writing, assistance was provided by the researcher.

3. The researcher read the words to all subjects while they followed in their books. This was included to increase awareness of the story as a unit, rather than only as pages of information treated in isolation.

4. Preference questions were posed one at a time and subjects were asked to respond to them on their record sheets. Where comparisons of stories were required stories were reviewed to encourage accurate answers.

Each day record sheets and story materials were collected. Analysis of the performance scores as well as preference scores was undertaken at the completion of the investigation.

Chapter V presents the performance scores and preference scores, the related data analysis used for each and pertinent findings indicated in the data. This is followed by a discussion of the findings as related to the background literature presented in Chapters II and III.

Chapter V

RESEARCH FINDINGS AND DISCUSSION OF THE STUDY

This chapter first presents the findings of the study and second discusses the findings in relation to the literature and theory presented in Chapters II and III. The first section presents the performance scores and preference scores of the children. Following each of the score presentations is a review of the statistical analysis used and pertinent findings indicated in the analysis. The first section concludes with a discussion of a further research finding regarding male and female performance and a summary of findings. The second section presents a discussion of the findings of the study, based on the sample population used, and related to background literature and roles of visual information found in Chapters II and III.

STUDENT SCORES

Performance Scores

The performance scores of the students were charted as seen in Figures 9, 10 and 11. Figure 9 presents a histogram showing overall student responses to performance questions. The range of responses as indicated by the scores varied from a lowest score of 4 out of 12 correct responses to a perfect score of 12. Within the sample 4 students answered all the questions correctly, but none of the students answered all the questions incorrectly. As seen in Figure 9 the

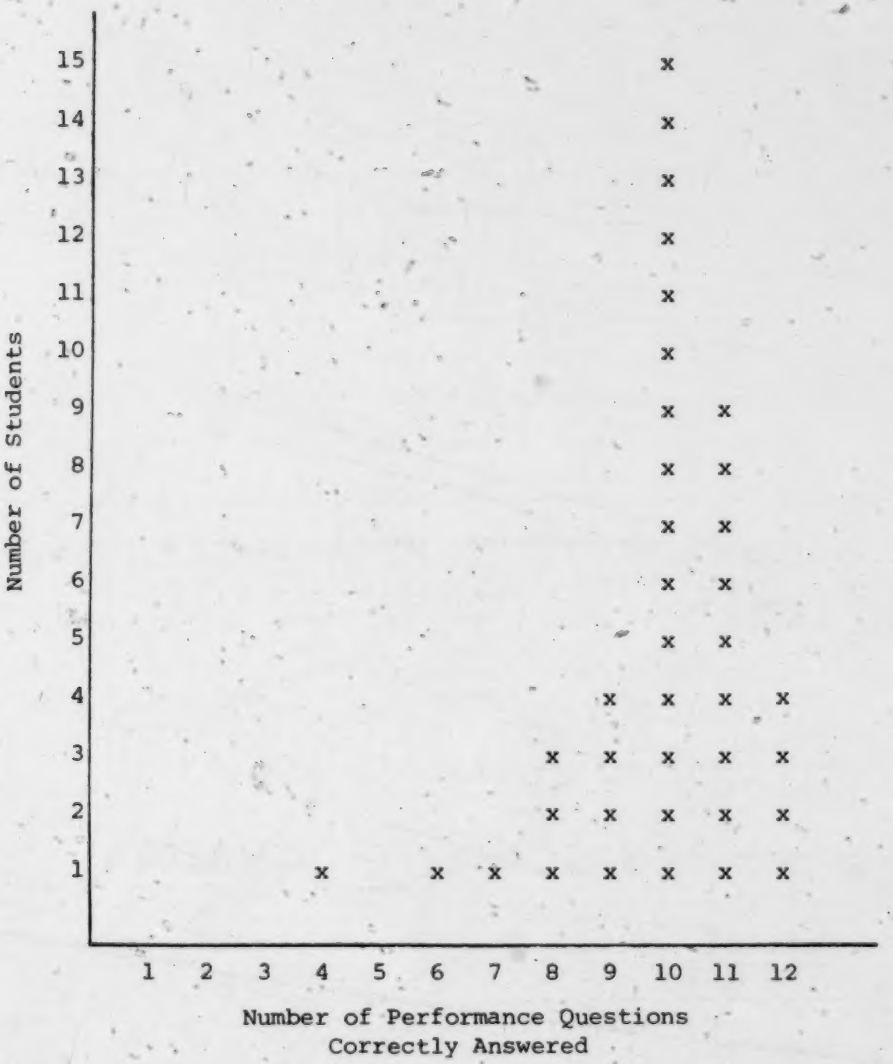


FIGURE 9

STUDENT PERFORMANCE SCORES ACROSS MODE AND FORM

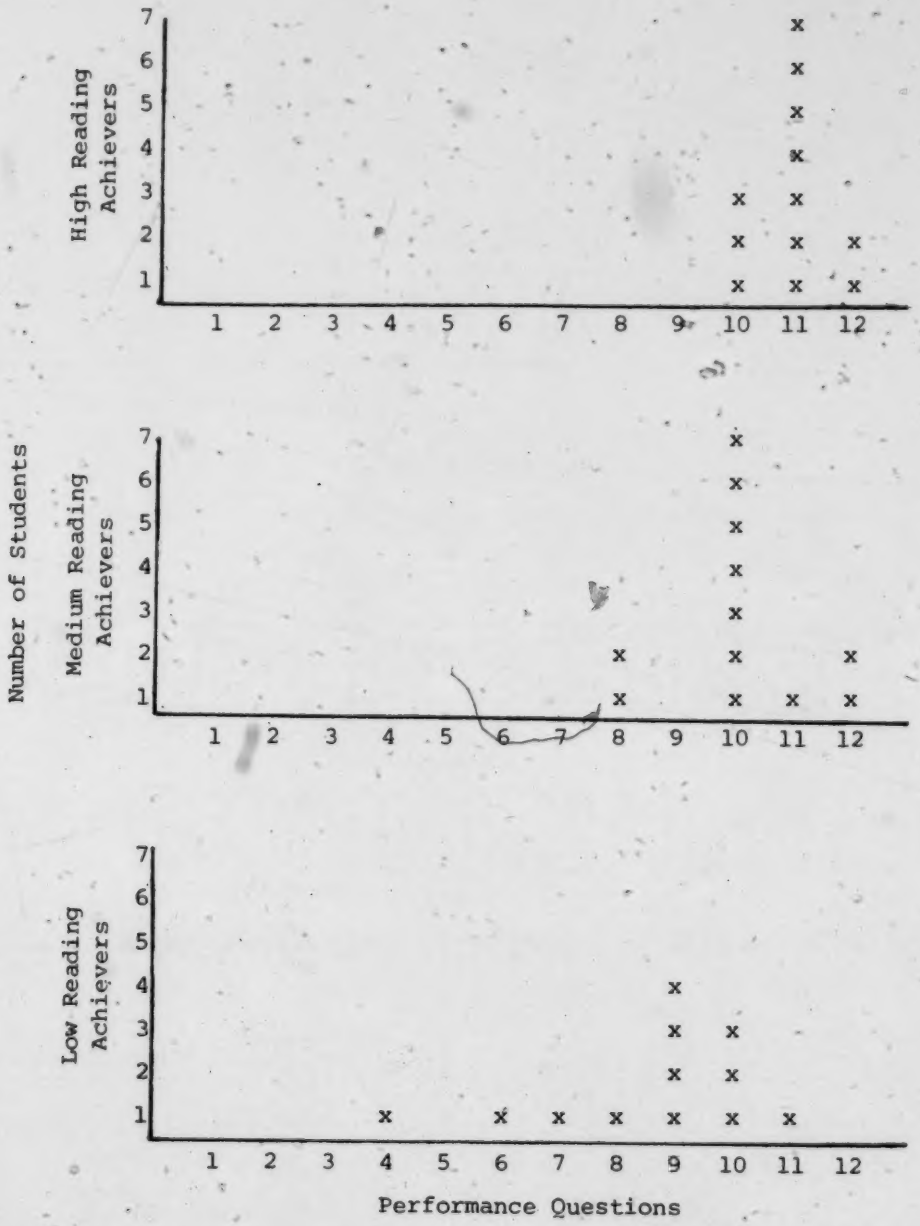
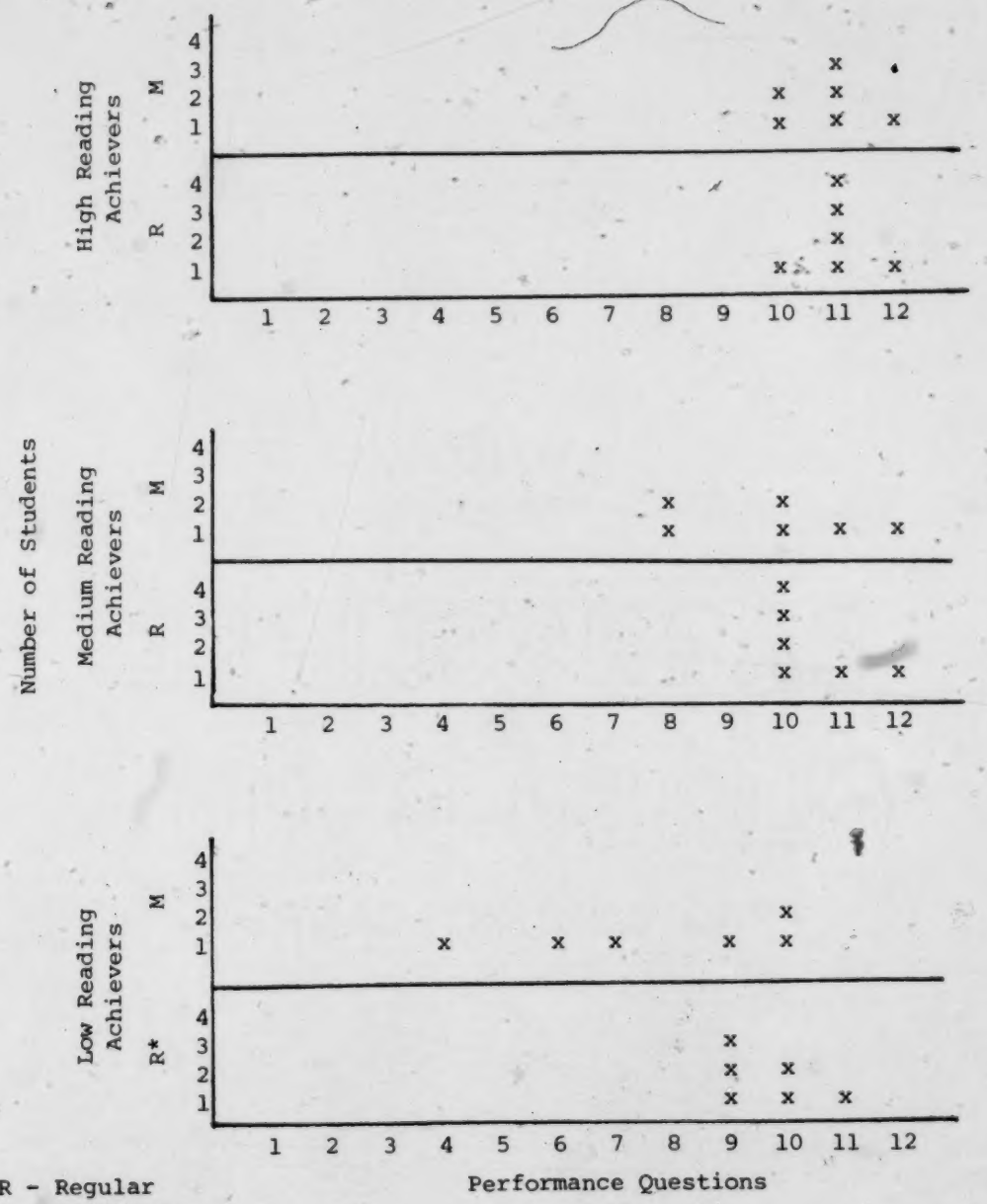

High Reading Achievers
Medium Reading Achievers
Low Reading Achievers
Number of Students
Performance Questions
1 2 3 4 5 6 7 8 9 10 11 12
1 2 3 4 5 6 7

FIGURE 10

STUDENT PERFORMANCE BY READING ACHIEVEMENT GROUP



*R - Regular
M - Modified

FIGURE 11

STUDENT PERFORMANCE BY READING ACHIEVEMENT GROUP BY FORM

measure was planned to consider student performance on materials similar to that previously encountered. The skewing to the right was accepted as an indicator that students had encountered similar material and while some found the questions easy to answer none of them found all questions difficult.

Figure 10 presents a histogram showing student performance within reading achievement groups, and Figure 11 within reading achievement groups using regular and modified forms. The scores for the low reading achievement group ranged from 4 to 11, for the medium reading achievement ranged from 8 to 12, and for the high reading achievement group from 10 to 12. The distribution of scores is best for the low group, more concentrated for the medium group, and unfavorably concentrated for the high group. As seen in Figure 11, groups using the modified form consistently scored lower than those using the regular form. Although this is most pronounced for the low group it is also noticeable for the medium group.

Student performance on the four questions in each of the three modes can be seen in Figure 12. All groups had more students performing higher in the pictorial mode, and the graphemic & pictorial mode than in the graphemic mode. The high reading achievers, who were the only students to correctly answer all questions using one mode, used the graphemic & pictorial mode most efficiently. The medium reading achievers performed on all three modes approximately the same with seven students performing better on the pictorial mode than the six students on the graphemic & pictorial mode. Low reading achievers performed best on the pictorial mode, and least well on the

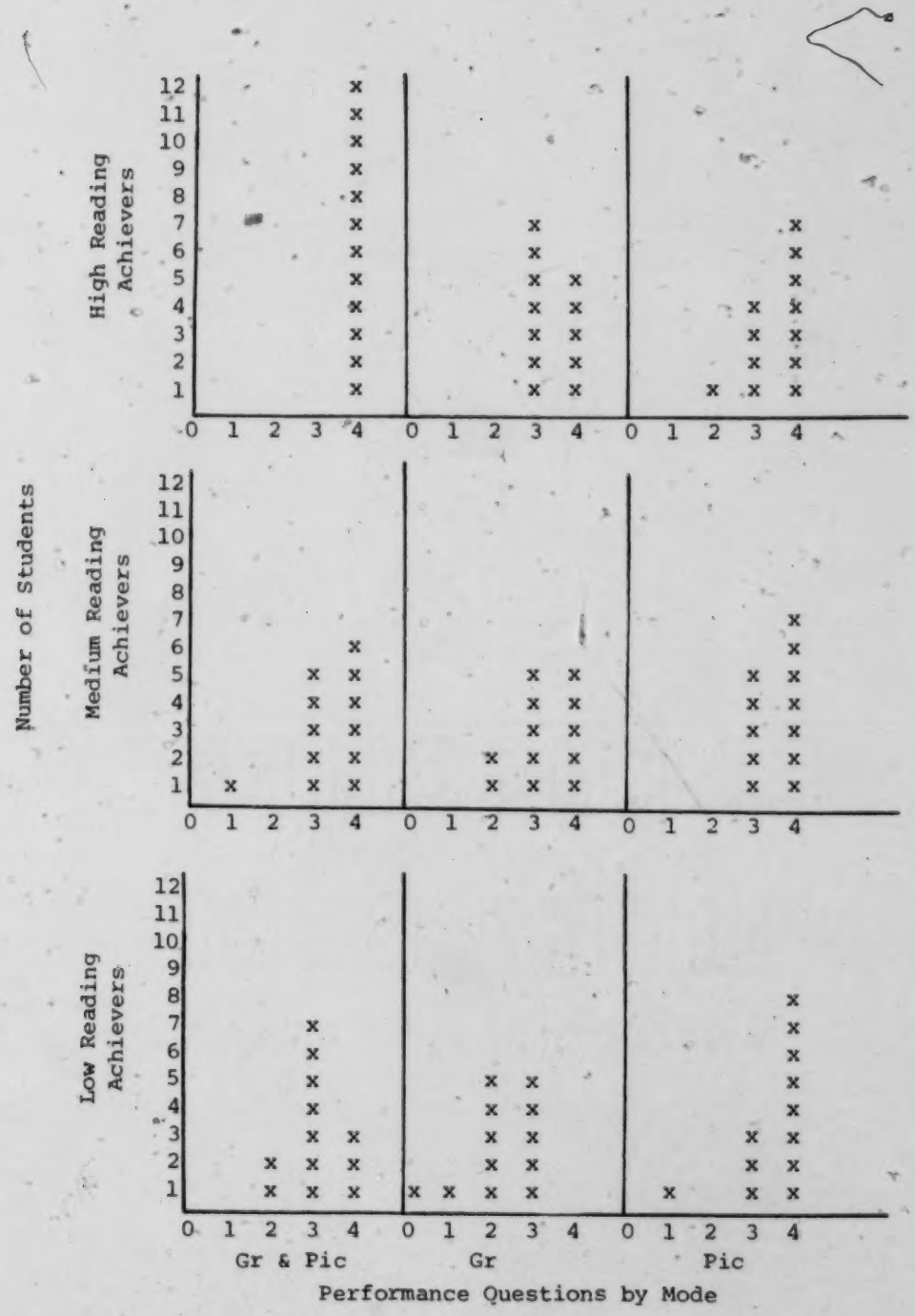


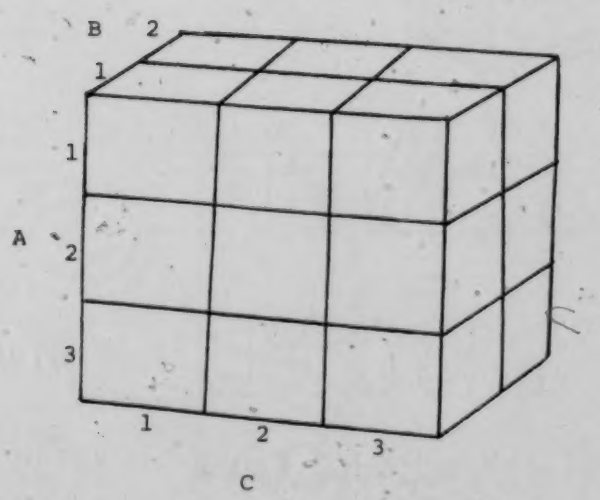
FIGURE 12

STUDENT PERFORMANCE ON MODES BY READING ACHIEVEMENT GROUPS

graphemic mode.

Data Analysis of Performance Scores

The design used for the data analysis of the performance scores was a three way analysis of variance for repeated measures (see Figure 13). Where form was not an important consideration a two way analysis of variance was used. Significant main effects were tested using the Scheffé test of multiple comparisons to determine which cells contributed to each effect.



A = Reading Groups
1 = High
2 = Medium
3 = Low

B = Form
1 = Regular
2 = Modified

C = Mode
1 = Graphemic & Pictorial
2 = Graphemic
3 = Pictorial

FIGURE 13

DESIGN FOR DATA ANALYSIS

Three way analysis of variance. Findings of the three way analysis of variance for repeated measures (reading achievement group x form x mode) are summarized in Table 8. The group means used in this

TABLE 8

THREE WAY ANOVA FOR ACHIEVEMENT: ACHIEVEMENT GROUP x FORM x MODE

Source	Sum of Squares	Degrees of Freedom	Mean Squares	F-Ratio	Probability
Between Subjects	48.917	35			
A (Achievement Group)	10.500	2	5.250	5.44	0.010
B (Form)	4.898	1	4.898	4.08	0.032
AB (Interaction	4.574	2	2.287	2.37	0.111
Subjects within Groups	28.945	30	0.965		
Within Subjects	40.000	72			
C (Mode)	7.167	2	3.583	8.52	0.001
AC (Interaction Achiev. Gr. x Mode)	6.833	4	1.71	4.06	0.006
BC (Interaction Form x Mode)	0.240	2	0.120	0.29	0.752
ABC (3-way Interaction)	0.537	4	0.134	0.32	0.864
C x Subjects within Groups	25.222	60	0.420		

comparison are presented graphically in Figure 14.

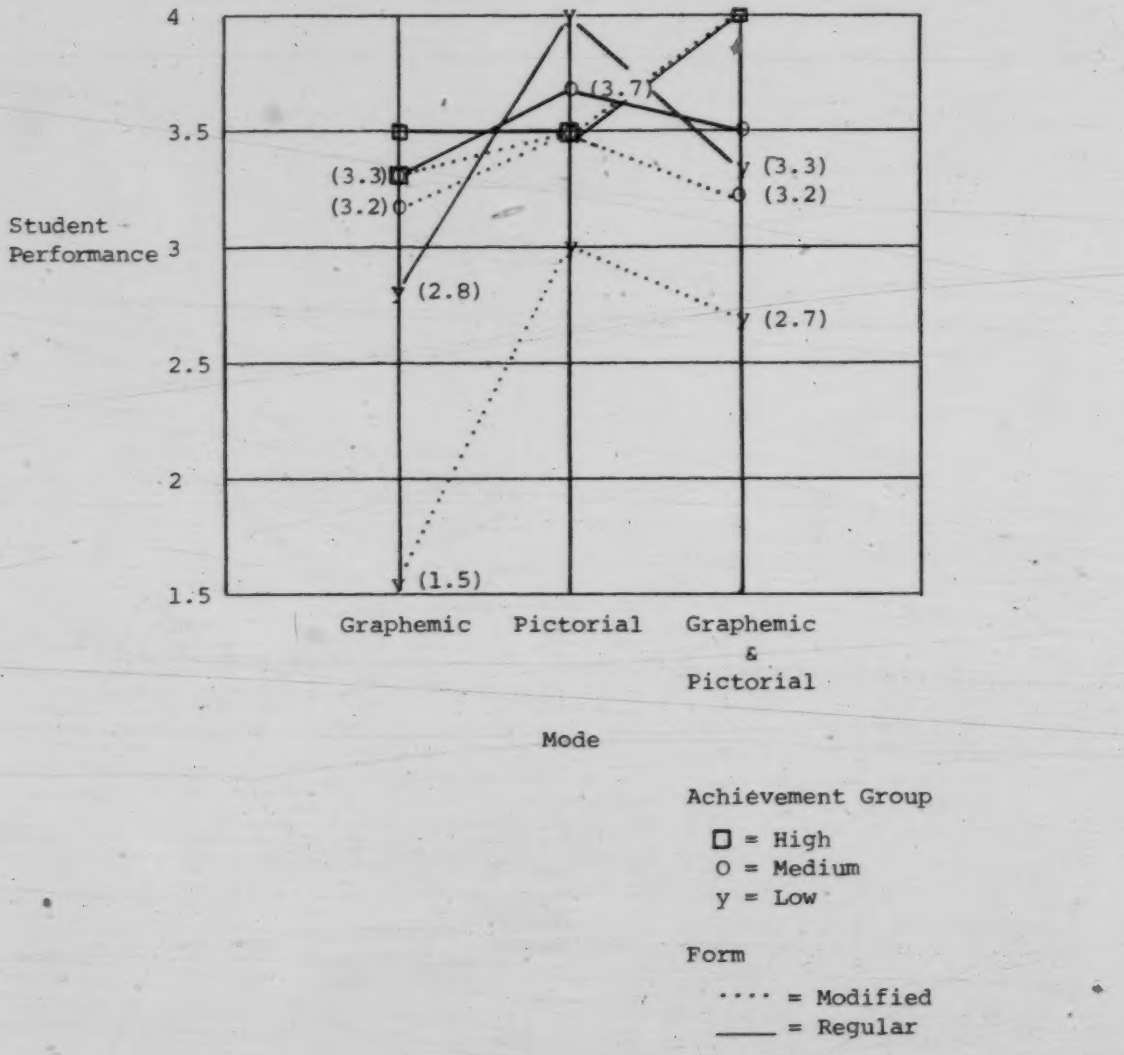


FIGURE 14

COMPARISON OF GROUP MEANS FROM THE THREE WAY ANALYSIS OF VARIANCE

The findings of the three way analysis of variance indicate a significant form (B) effect. $F(1,30) = 5.08$, $p = .03$ between regular and modified forms. Inspection of the means (see Figure 14)

indicates subjects using the modified form performed consistently poorer than those using the regular form.

Scheffé multiple comparisons indicated that the significant form effect was largely due to differences in regular and modified forms for low readers in the graphemic mode ($.01 < p < .05$). Low readers scored significantly poorer than medium or high readers in the modified graphemic mode ($.01 < p < .05$), and poorer than high readers in the modified graphemic & pictorial mode ($.01 < p < .05$).

Two way analysis of variance. The results of the two way analysis of variance for repeated measures (achievement group x mode) are summarized in Table 9. The group means used in this comparison are presented graphically in Figure 15.

The significant main mode (B) effect, $F(2,66) = 9.10$, $p < .01$, indicates a significant difference between modes. Inspection of the means (see Figure 15) indicates low achievement readers scored less on the graphemic mode than on either of the graphic & pictorial, or the pictorial modes. Scheffé multiple comparisons indicated that for the low achievement readers there were significant differences between the graphemic and the pictorial modes ($p < .01$), and between the graphemic and the graphemic & pictorial modes ($p < .01$). Performance scores for the pictorial mode and the pictorial & graphemic modes did not differ significantly.

Examination of the medium achievement readers' performance scores indicates highest scores using the pictorial mode (see Figure 15). However, Scheffé multiple comparisons show no significant differences between performance scores on the three modes.

TABLE 9

TWO WAY ANOVA FOR ACHIEVEMENT: ACHIEVEMENT GROUP x MODE

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F-Ratio	Probability
Between Subjects	48.917	35			
'A' Main Effects (Group-Row)	10.501	2	5.250	4.510	0.019
Subjects within Groups	38.417	33	1.164		
Within Subjects	40.000	72			
'B' Main Effects (Mode-Column)	7.167	2	3.583	9.096	0.000
'A*B' Interaction	6.833	4	1.708	4.336	0.004
'B' x Subjects within Groups	26.000	66	0.394		

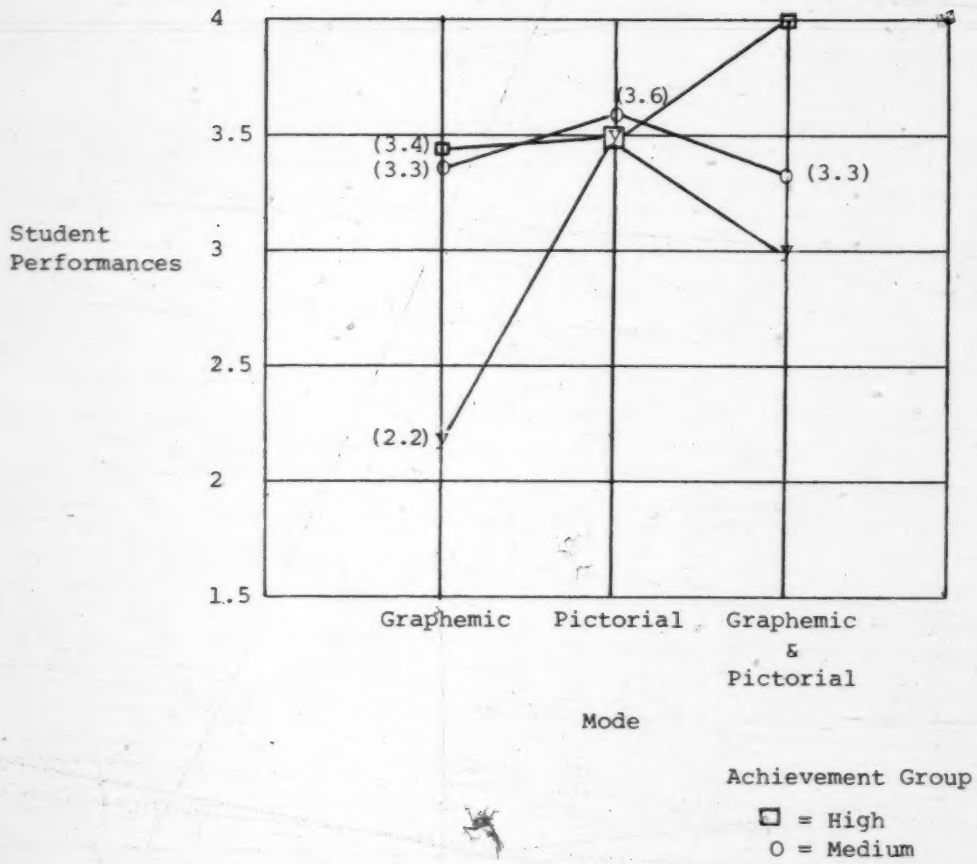


FIGURE 15

COMPARISON OF GROUP MEANS FROM THE TWO WAY ANALYSIS OF VARIANCE

Performance scores of high achievement readers are highest on the graphemic & pictorial mode (see Figure 15). Scheffé multiple comparisons show a significant difference between high reading achievers' performance on the pictorial & graphemic mode and the graphemic mode ($.05 < p < .10$). The differences between the graphemic mode and the pictorial mode are not significant. Nor are the differences between the graphemic & pictorial mode and the pictorial mode significant.

Results of the two way analysis of variance as seen in Table 9, indicate a significant difference between high, medium, and low readers, $F(2,33) = 4.5$, $p = .02$. Scheffé multiple comparisons indicate high readers scored significantly higher than low readers ($.01 < p < .05$) and higher than medium readers ($.05 < p < .10$) on the graphemic & pictorial mode. High readers also performed significantly better than low readers ($p < .01$) and medium readers ($p < .01$) on the graphemic mode. The difference between medium and high readers' scores on the pictorial mode was not significant. Differences between medium and low readers were significant on the graphemic mode ($p < .01$).

Preference Scores

The preference scores of the students are charted in Figures 16, 17, and 18. Figure 16 presents a histogram showing student preferences for the three modes. Students rated each story as to first, second, and third choices. Preferences scores were determined by assigning a first choice one point, a second choice two points, a third choice three points. Total points for each of the three choices were calculated. When working in the graphemic & pictorial mode 18 students

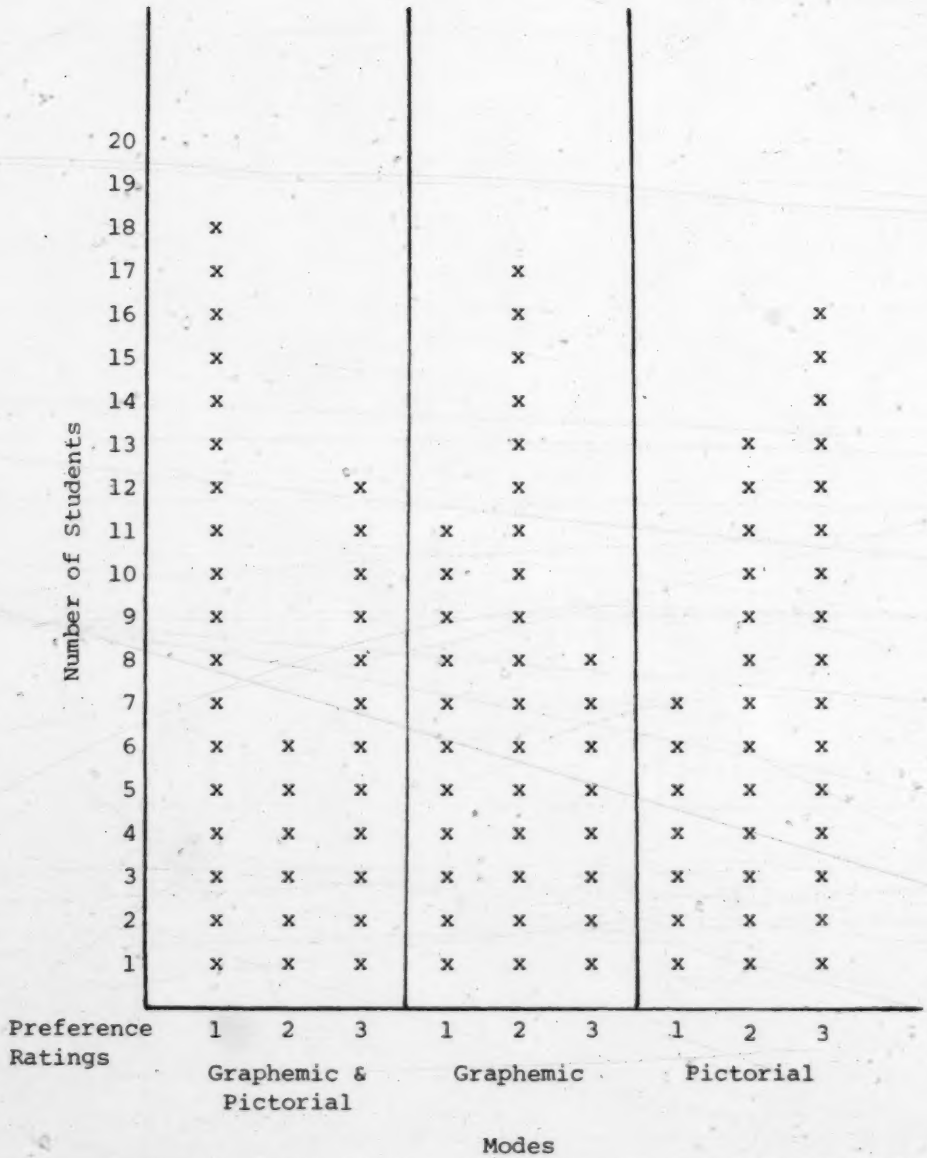


FIGURE 16

MODAL PREFERENCE RATINGS OF STUDENTS

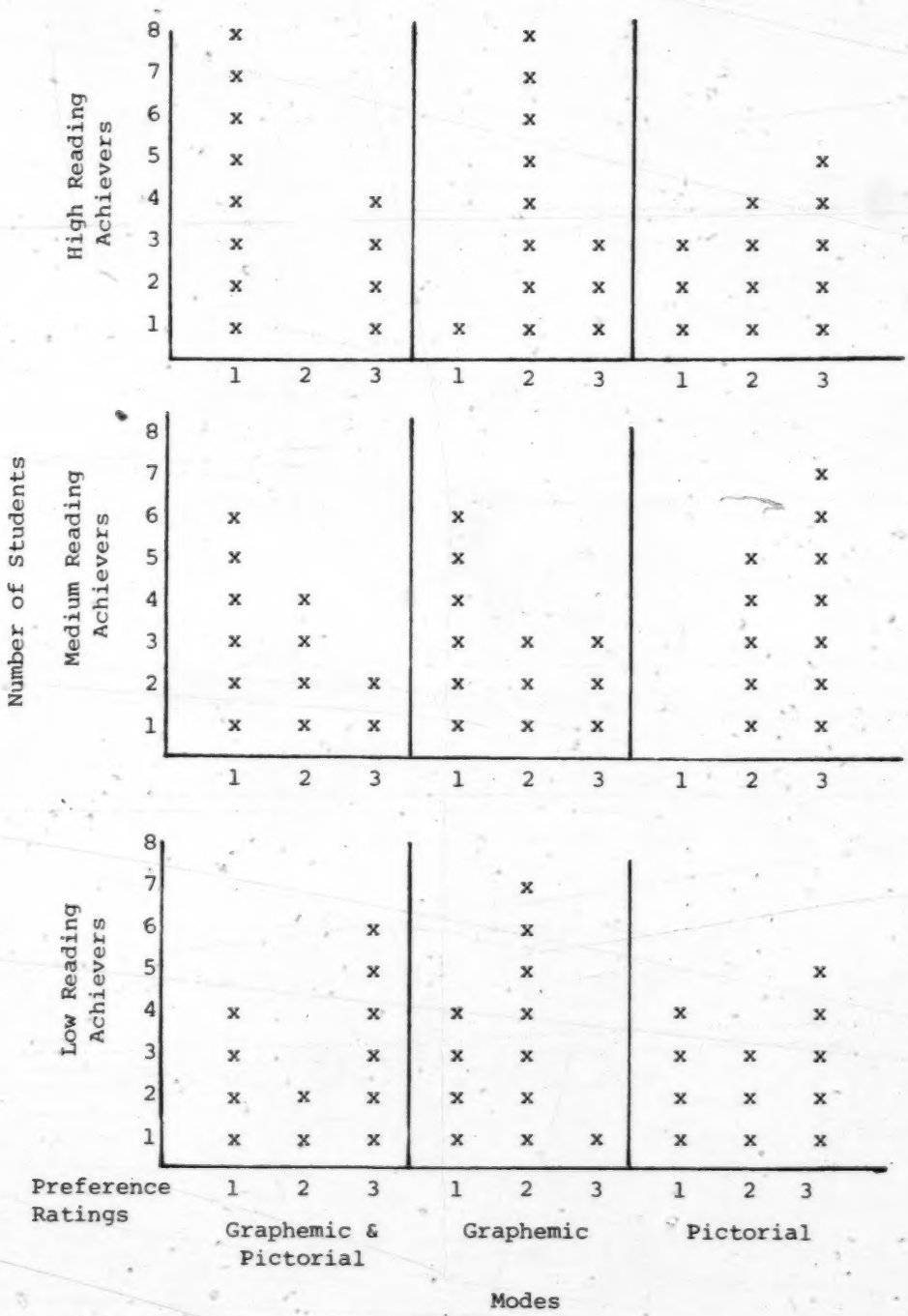


FIGURE 17

STUDENT MODAL PREFERENCE RATINGS BY READING ACHIEVEMENT

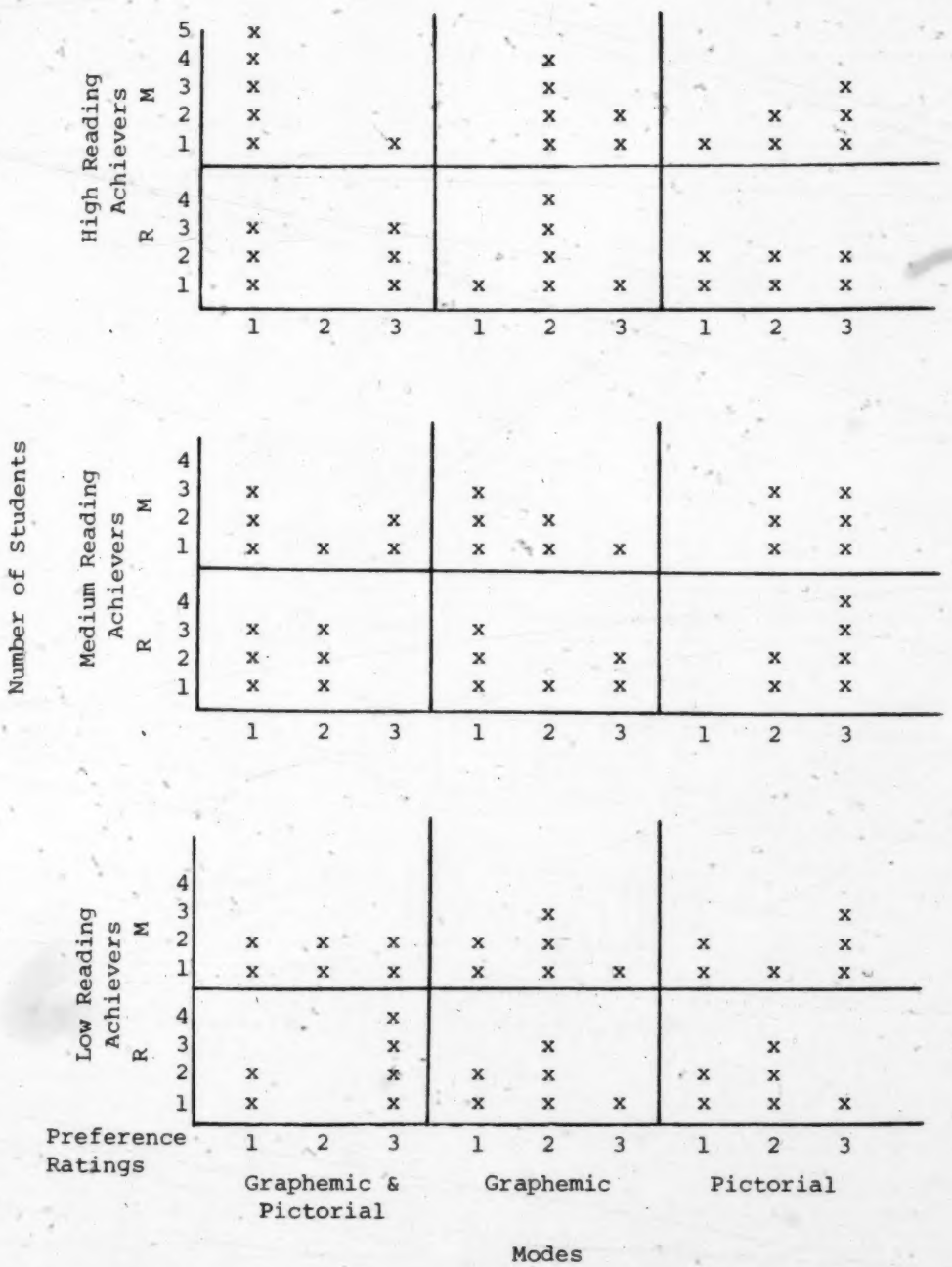


FIGURE 18

STUDENT MODAL PREFERENCE RATINGS BY ACHIEVEMENT GROUP AND STORY FORM

indicated first preference for that mode, 6 for it as second choice and 12 for it as third choice. Similarily, when working in the graphemic mode 11 students indicated it was their first choice, 17 students indicated it was their second choice, and 8 students said it was their third choice. Ratings on the pictorial mode indicated 7 students selected it first, 13 selected it second, and 16 selected it third.

The overall preference of the students is shown to be the graphemic & pictorial mode (N = 18), second preference is the graphemic mode (N = 11), and third the pictorial mode (N = 7).

Figures 17 and 18 present charts of student preference ratings according to their reading achievement groups. The latter figure presents the achievement groups according to regular and modified forms.

The same number of students in the low reading achievement group rated each of the three modes as their first preference (N = 4). As second choice more selected the graphemic mode than the other modes (N = 7). Figure 18 shows that these choices were quite evenly distributed between students in the regular and modified forms.

The same number of students in the medium reading achievement group rated the graphemic & pictorial mode and the graphemic mode as most preferred (N = 6 in Figure 17). The same number of students in the regular and modified forms selected these modes as their most preferred (N = 3 in Figure 18).

High reading achievers selected the graphemic & pictorial

mode as the most preferred choice (N = 8). They selected the graphemic mode as the most preferred second choice (N = 8).

Summary of preference scores. The preference scores are summarized in Table 10. These scores were derived from the students' expression of their first, second, and third modal choices. For example, a child could have rated the graphemic & pictorial mode as first, the graphemic mode as second and the pictorial mode as the third choices. The first would be assigned a score of one, the second a score of two, and the third a score of three. The smallest number represented the most preferred, and the largest number the least preferred.

TABLE 10

SUMMARY OF PREFERENCE SCORES ON THE THREE MODES

	Mode		
Reading Group	Graphemic & Pictorial	Graphemic	Pictorial
High	20*	26	26
Medium	20*	21	31
Low	26	22*	24
Total	66*	69	81

* Lowest choice is most preferred.

As seen in Table 10 low readers preferred the graphemic mode (N = 22), medium preferred the graphemic & pictorial mode (N = 20), and high readers preferred the graphemic & pictorial mode (N = 20). The pictorial mode was the least preferred among the reading

achievement groups (N = 81 against 69 and 66).

For each achievement group the comparison of performance on modes (see Figure 14) with the most preferred modes is as follows:

1. Low readers preferred the graphemic mode, possibly because of teacher expectations. However, they achieved best in the pictorial mode.

2. Medium readers preferred the graphemic & pictorial mode, but achieved similarly in all three modes.

3. High readers preferred the graphemic & pictorial mode and achieved best in the graphemic & pictorial mode.

FURTHER RESEARCH FINDINGS

Male and Female Performance

Although performance differences between male and female subjects were not hypothesized, the data appeared to depict sex differences in comparison scores (see Figure 19).

To test this observation a three way analysis of variance for repeated measures (achievement group x sex x mode) was conducted. The results of this analysis are summarized in Table 11.

The significant main sex (B) effect, $F(1,30) = 4.2$, $p = .05$, indicates significant differences between the performance scores of males and females whose mean scores are shown in Figure 19. Scheffé multiple comparisons indicated that high and medium achieving female readers scored significantly higher on the graphemic & pictorial mode than they did on the pictorial mode ($.05 < p < .10$). Low achieving girls scored significantly lower on graphemic mode than all other students ($p < .01$). Low achieving girls and boys scored significantly

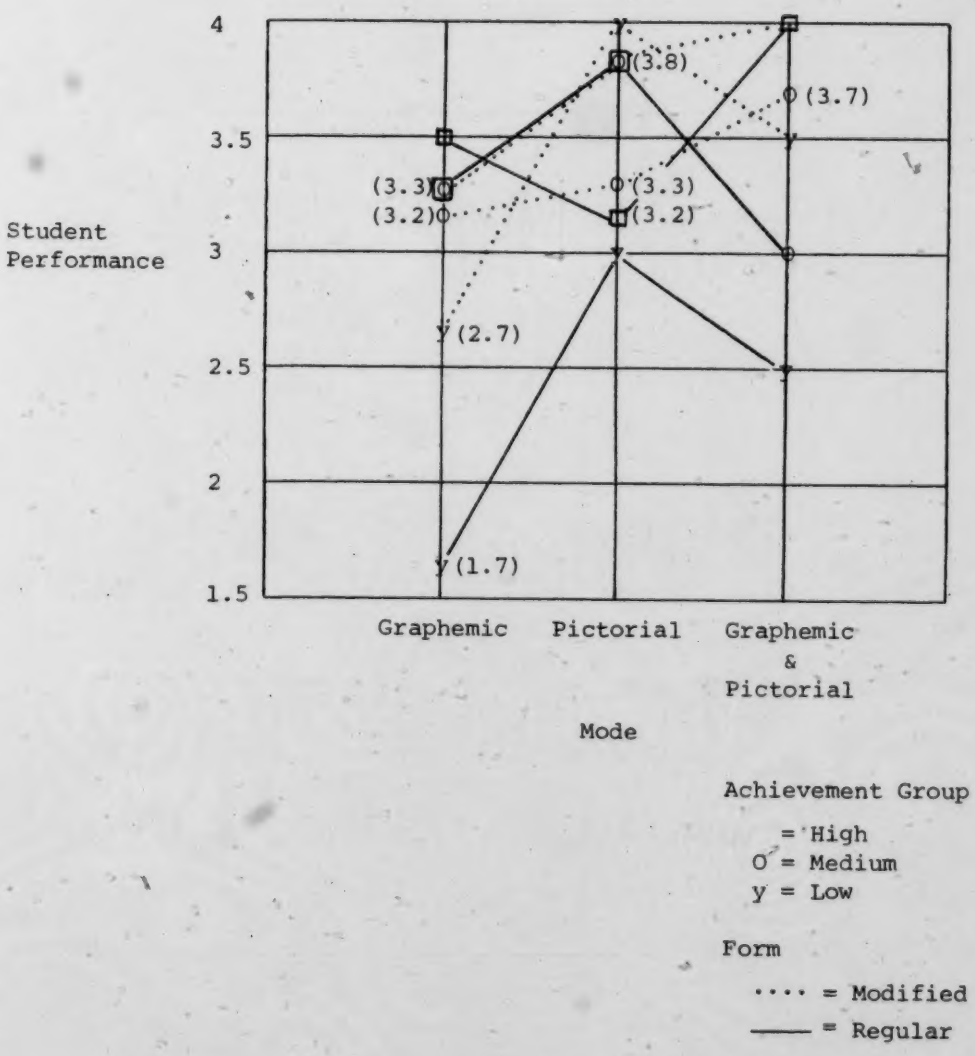


FIGURE 19

COMPARISON OF MALE/FEMALE MEAN SCORES FROM THE THREE WAY ANALYSIS OF VARIANCE

TABLE 11

THREE WAY ANOVA FOR ACHIEVEMENT: ACHIEVEMENT GROUP x SEX x MODE

Source	Sum of Squares	Degrees of Freedom	Mean Squares	F-Ratio	Probability
Between Subjects	48.917	35			
A (Achievement Group)	10.500	2	5.250	5.40	0.010
B (Sex)	4.083	1	4.083	4.20	0.049
AB	5.167	2	2.583	2.66	0.087
Subjects within Groups	29.167	30	0.972		
Within Subjects	40.000	72			
C (Mode)	7.167	2	3.583	9.49	0.000
AC	6.833	4	1.708	4.52	0.003
BC	0.500	2	0.250	0.66	0.520
ABC	2.833	4	0.708	1.87	0.127
C x Subjects within Groups	22.667	60	0.378		

lower on the graphemic mode than on other modes ($.05 < p < .10$). There were no significant differences between scores of boys and girls on the pictorial mode.

SUMMARY OF FINDINGS

The following summary is based on the findings of the data analyses.

1. The low reading achievement group performed significantly lower using the modified form than using the regular form in the graphemic mode and the graphemic & pictorial mode.

2. The low reading achievement group performed significantly lower using the graphemic mode that the other two modes.

3. The medium reading achievement group performed without significant differences when using the three modes.

4. The high reading achievement group performed highest using the graphemic & pictorial mode.

5. Although the readers together preferred the graphemic & pictorial mode most, followed by graphemic mode, and least the pictorial mode, the low achievers preferred the graphemic mode and the medium and high preferred the graphemic & pictorial mode.

6. The medium and low achievement groups did not express preference for the mode of their highest performance; the high achievement group did.

7. Low achieving females scored significantly lower on the graphemic mode than any other subjects. There were no significant differences between performance of the boys and girls on the other modes.

DISCUSSION OF THE STUDY

In Chapters II and III it was hypothesized that beginning readers may depend on different modes of visual information when it is no longer appropriate for them to do so. The main purpose of the study as described in Chapter IV was to investigate the degree to which children near the end of Grade I depend on the graphemic, the pictorial and the graphemic & pictorial modes of information in beginning reading materials. The following discussion reviews the findings of that study as they are related to the support found in the background literature. The discussion is directed toward the sample used in the study and generalizability is limited to similar samples in similar situations.

There are three areas of pertinence and in this regard they are presented here. The first is the developmental progression in modal usage. Second is the use of visual information, and third is the reading process.

Developmental Progression in Modal Usage

There appears in the current study to be a sequence of development reflected in the performance scores of the reading achievement groups.

The low reading achievement group. These subjects performed better using the pictorial mode than the graphemic mode. Biemiller (1970) suggested a first stage in oral reading development reflected a predominant use of pictorial information. The low achievement group in the present study indicated parallel development in silent reading.

In this case low reader responses to performance questions were highest when using the pictorial mode, or the pictorial & graphemic mode. The performance on the graphemic mode was significantly lower than the pictorial, suggesting that these children used predominantly the pictorial mode for information. As Biemiller suggests, such children may consciously avoid using the graphemic mode.

The medium reading achievement group. This group performed without differences among the three modes. Comparatively speaking they used each mode as efficiently as the other. They used the graphemic mode as efficiently as the high reading achievement group and significantly better than the low reading achievement group. A definite increase was noted in graphemic usage between the low and medium groups. Such an increase was not found between the medium and high achievement reading groups. Biemiller (1970) suggests that the initial stage which is characterized by use of pictorial information is followed by a second stage in which children characteristically use increased graphemic information. The medium achievement readers in the present study appeared to use graphemic information in isolation as well as the high achievement readers, but were as able to use combined graphic & pictorial information as the high achievement readers.

The high reading achievement group. This group performed significantly better on the graphemic & pictorial mode than on the graphemic mode. Differences between the pictorial mode and the graphemic mode were not significant. Their usage of the graphemic & pictorial mode was significantly better than the usage of the medium reading achievement group. According to Biemiller (1970) beginning readers progress beyond use of predominantly pictorial information, to predominantly graphemic information, to a third level where both

are used for increased accuracy in reading. The high reading achievers appeared to perform well on the graphemic mode and the pictorial mode, but performed their best using the combined mode.

There appears to be a developmental progression reflected in the findings of the present study from (a) most efficient usage of pictorial information, (b) to equally efficient usage of separate graphemic information and separate pictorial information, (c) to combined usage of the graphemic & pictorial mode for most efficiency.

Use of Visual Information

In the current study students were expected to use two strategies to reconstruct meaning. First, they were expected to use one forced strategy to decode the graphemic mode and the pictorial mode, and second their own strategy to decode the combined graphemic & pictorial mode, sampling from one or both sources.

Denburg (1977) postulated an integration of visual information in word identification. She assumed that because all readers are potentially proficient they sample information partially or completely. The only time a complete trade-off can occur is when one mode of information is insufficient so the other is used as a further source. The less information required from sources other than the graphemic, the more words that are identified. This restated inversely becomes the greater the amount of information traded-off, the fewer the words that are identified. Reading achievement groups in so doing sample differing degrees of graphemic and pictorial information, trading-off according to need.

The high reading achievement group. The findings of the study indicate that the high reading achievement group in using the graphemic & pictorial mode most efficiently, appear to sample information from both graphemics and pictorials. They also performed well on the other modes suggesting ability to use all modes efficiently.

The medium reading achievement group. Medium achievement readers used each of the three modes with similar efficiency but at a lower level of performance than the high group. They appeared flexible in their usage, sampling from graphemics and pictorials in the combined mode, and using graphemic information and pictorial information in the forced situations equally well. The difference in their achievement and that of high readers' achievement suggests they trade off more graphemic information than the high readers, and have not reached the same degree of proficiency.

The low reading achievement group. Low achievement readers used the pictorial mode most efficiently, but their performance level was lower than that of the other groups. Their use of the graphemic & pictorial mode was not significantly different than their use of the pictorial mode. They used the graphemic mode least well. These children appear to use a forced strategy even when an alternative is available. When the graphemic & pictorial mode was used they did better than on the graphemic mode, and about the same as on the pictorial mode. The increase in information from words and pictures does not appear to increase their chances of reconstruction of meaning. This was further indicated by the performance score analyses

on the regular and modified modes. The low reading achievers encountered more difficulty with the increase of information in the modified form. It appears according to Denburg's (1977) theory of integration that these children sample primarily and most efficiently from pictorials. They may have found graphemics convenient to trade-off with the abundance of pictorials available in the stories.

There are points of clarification for this model which justify inclusion. They are as follows:

1. The beginning reader can reconstruct meaning from graphemic and/or pictorial modes of information. In this study a developmental progression was indicated from use of pictorial information, to graphemic information, to graphemic and pictorial information.

2. There is a possibility of the model information being partially or totally sampled by all students but with differing performance. In this study high achievement readers sampled partially from both kinds of the information in the graphemic & pictorial mode or when necessary also sampled well from the other modes. Medium achievement readers sampled partially and totally in the three modes, performing equally well but at a lower level of performance than the high achievement group. Low achievement readers were most efficient using a forced pictorial strategy. They performed similarly on the graphemic & pictorial mode but at a lower level than the others, which suggests use of a similar pictorial strategy even though the strategy was optional then.

3. Some children may continue to use a forced strategy, sampling totally from pictorial information when it may no longer be

appropriate to do so. The low reading achievers appeared to use only the pictorial information. This could account for lack of progress as graphemic word learning would not occur this way (Denburg, 1977).

4. Expressed preference for a mode is not necessarily the mode on which low reading achievers or medium reading achievers perform best. High reading achievers in this study were the only readers who were consistent in preference and performance modes.

Chapter VI has been organized to present a brief overview of the study, a summary by hypotheses of the findings and conclusions of the study, implications of the findings for educational practise, suggestions for further research, and a concluding statement.

Chapter VI

A SUMMARY OF THE STUDY

This chapter has been organized into five sections. The first section is a brief overview of the study, the second presents the findings by hypothesis and draws conclusions. Implications of the findings for educational practice are discussed in the third section with suggestions for further research outlined in the fourth section of this chapter and a concluding statement completing the fifth section.

OVERVIEW OF THE STUDY

The major purpose of the study was to investigate the degree to which children, who are within three months of the end of first grade, depend on pictorial and graphemic, only pictorial, and only graphemic information in beginning reading.

In addition, an attempt was made to determine whether the children preferred using the same mode of information as that on which they demonstrated dependence.

Thirty-six first grade children, divided into high, medium, and low reading achievement groups, each read three stories which originated in Funny Surprises (first preprimer of the Nelson Language Development Reading Program). Six sets of three stories were prepared. In 'regular form' (taken directly from the original book) the three stories received three modal presentations:

1. the graphemic & pictorial mode
2. the graphemic mode
3. the pictorial mode.

In 'modified form' the three stories received three modal presentations:

4. the graphemic & pictorial mode
5. the graphemic mode
6. the pictorial mode.

Half of each achievement group read the stories in regular form and half read the stories in modified form, according to procedures established. Students were asked questions to which they recorded responses on private worksheets. Student performance and preference were evaluated according to these responses. Two and three way analyses of variance were used to statistically evaluate group performance, differences between group performance, and differences between male and female performance. Scheffé multiple comparisons were used to evaluate statistical differences between performance scores. Total preference scores were calculated according to the subjects' preferences.

FINDINGS BY HYPOTHESES

Null hypotheses were formulated and tested by statistical procedures. Each hypothesis is followed by a brief summary of the findings, the status of the null hypothesis and conclusions drawn from the findings.

Null Hypothesis #1

There is no statistically significant difference between performance scores on regular and modified forms for (a) high reading achievers, (b) medium reading achievers, (c) low reading achievers.

Summary. A three way analysis of variance with repeated measures (achievement group x form x mode) indicated that student scores on the modified form were consistently lower than on the regular form. This is significantly so of the low achievers especially when they used the modified graphemics, and modified graphemic & pictorial modes.

Null hypothesis one (a) and (b) is accepted for the high reading achievement group and for the medium reading achievement group. There were no significant differences in the performance of each of these groups when they were using the regular and modified forms. Null hypothesis one (c) is rejected for the low achievement reading group. Their performance was significantly lower on the modified forms of the graphemic mode, and on the graphemic & pictorial mode.

This difference in performance between the high and medium groups, and the low group may be due to the inability of the low group to use the increased graphemic information presented in the modified form.

The data indicate that rather than increasing the probability of correct reconstruction of meaning, the increased information supplied in the modified form made the reconstruction consistently more difficult. For the low reading achievement group the additional information appeared to hinder rather than assist reconstruction.

Null Hypothesis #2

There is no statistically significant difference between the reading performance scores of low achievement readers when reading in the pictorial mode than in (a) the graphemic & pictorial mode or (b) the graphemic mode.

Summary. This hypothesis was tested by means of a two way analysis of variance (achievement group x mode) and Scheffé multiple comparisons. Low reader scores were highest in the pictorial mode. There were significant differences between scores on the pictorial mode and the graphemic mode, as well as between the graphemic mode and the graphemic & pictorial mode. Differences between scores on the pictorial mode and the graphemic & pictorial mode were not significant.

Null hypothesis two (a) is accepted for the low reading achievement group using the pictorial mode and the graphemic & pictorial mode. Null hypothesis two (b) is rejected for the low reading achievement group using the pictorial mode and the graphemic mode.

The differences in low reading achiever performance between the pictorial mode, the graphemic & pictorial mode and the graphemic mode suggest that the graphemic mode is harder for them to use, rather than the pictorial mode being easier for them to use. The possibility of these readers deliberately avoiding the graphemic information and depending on the pictorial information was discussed in Chapter V as an explanation of the low reading achiever performance.

Null Hypothesis #3

There is no statistically significant difference between reading performance scores of medium achievement readers when reading in the graphemic & pictorial mode than in (a) the pictorial mode or (b) the graphemic mode.

Summary. Mean performance scores on the two way anova indicate medium readers scored highest on the pictorial mode. Scheffé multiple comparisons show there were no significant differences between the performance on the three modes.

Null hypothesis three (a) and (b) is accepted on the basis that there were no significant differences in medium achievement reader performance when using the graphemic & pictorial mode and the pictorial mode or when using the graphemic & pictorial mode and the graphemic mode.

The lack of difference in medium reader performance was indicated in Chapter IV as characteristic of predominant usage of graphemic information in reading. Even though graphemic information appeared to be predominant, pictorial information was used as efficiently when subjects used a forced strategy.

Null Hypothesis #4

There is no statistically significant difference between reading performance scores of high achievement readers when reading in the graphemic mode than in (a) the graphemic & pictorial mode or (b) the pictorial mode.

Summary. Results of two way analysis of variance indicate significant differences between the performance of the high reading achievement group on the pictorial & graphemic mode, and the graphemic mode. There were no differences between performance on the graphemic and the pictorial mode, or the pictorial mode and the graphemic & pictorial mode.

Null hypothesis four (a) is rejected for high achievement readers on the graphemic mode and the graphemic & pictorial mode. Null hypothesis four (b) is accepted for high achievement readers on the graphemic mode and the pictorial mode.

The performance of high reading achievers on the graphemic & pictorial mode was interpreted in Chapter V as an indication of their ability to sample from both graphemic and pictorial information. This interpretation is supported by the similarity of their performance scores on the graphemic mode and the pictorial mode.

Null Hypothesis #5

There is no statistically significant difference between reading performance scores of high achievement readers than (a) medium achievement readers or (b) low achievement readers, on each of the three modes.

Summary. A two way anova was used to analyze this data. Differences between specific cells were determined by Scheffé multiple comparisons. Significant differences were indicated between high and low reading achievers in the graphemic & pictorial mode and in the graphemic mode, low and medium reading achievers in the graphemic mode,

medium and high groups in the graphemic mode.

Null hypothesis five (a) and (b) is rejected for high and medium achievement readers in the graphemic mode only, and for high and low achievement readers in the graphemic & pictorial mode and the graphemic mode. In addition, there were significant differences between medium and low achievement readers in the graphemic mode. Null hypothesis five (a) and (b) is accepted for high, medium and low achievement readers using pictorials because no differences were indicated when using that mode.

The high achievement readers appear to have used graphemic information more efficiently than either the medium or low achievement readers. Similarly the medium achievement readers appear to have used graphemic information more efficiently than low achievement readers. Pictorial information was used equally well by the three achievement groups. The high group used the pictorial and graphemic mode most effectively themselves and better than the other groups.

The developmental progression discussed in Chapter IV as realized in Hypotheses one, two, three, and four can be further seen in the findings of Hypothesis five, by the increase in scores between low, medium and high groups on the graphemic and the graphemic & pictorial mode. Further comparison of group scores indicates differences in modal information that was used best by each of the groups. High achievement readers appeared to sample similarly from graphemics and pictorials in combination and pictorials alone to produce their best performance scores. Medium achievement readers appeared to sample from all equally well, but not as well as high achievers. Low

achievement readers in their best performance used pictorials equally as well as high and medium achievers. Evidence of qualitative increases in sampling was demonstrated by high and medium readers by increasingly better usage of graphemics than the low readers.

Null Hypothesis #6

High, medium, and low achievement groups will not prefer the modes in which their reading performance scores were the highest.

Summary. Total preference scores indicate that the pictorial mode was most preferred by the student sample. These scores indicated that:

1. High reading achievers preferred the graphemic & pictorial mode and performed best on the graphemic & pictorial mode (performance on the graphemic & pictorial mode and the pictorial mode was not significantly different).

The low and medium achievement groups did not prefer the modes on which their performances were highest, possibly because their past experiences influenced them. They did select as preferred modes the one that the next best readers were using. While they did not express preference for the mode of their best performance, they appeared aware of the need to use graphemic information in reading.

2. Medium reading achievers preferred the graphemic & pictorial mode, but performed best on the pictorial mode (the differences in performances scores were not significant).

3. Low reading achievers preferred the graphemic mode but performed best on the pictorial mode.

Null hypothesis six is rejected for the high achievement reading

group who preferred and performed best on the graphemic & pictorial mode. Null hypothesis six is accepted for the medium and low achievement reading groups. These groups did not prefer the modes on which their performances were highest.

IMPLICATIONS OF THE STUDY

The findings of the study imply consideration of four areas: the beginning reader, the teacher, the publisher and the educator. Each will be discussed briefly.

The Beginning Readers

If beginning reading materials used for instruction continue to contain similar information such as is found in Funny Surprises it is important to be aware that the beginning readers will use the information differently as was done among the achievement groups in the present sample.

There is a possibility that some children develop a misconception of reading, that is, involving primarily the decoding of pictorial information rather than the decoding of graphemic information. This could result in or precipitate continued use of pictorial information beyond its appropriateness.

The Teachers

The teachers of beginning readers should be aware of the possible ways a child can use beginning reading materials such as were used in this study. They should direct children's attention to the graphemics and do considerable training in a variety of situations,

such as those requiring no pictures. Awareness of the differences in the language used in readers and trade books should lead to increased teacher sensitivity when monitoring the performance of her students.

Richards (1974) suggests that pictorials should be designed by those who are setting out lesson plans. Teachers could do this, but it is more likely that this suggestion would be used by publishers in coordinating pictorials and lessons.

The teacher could more conceivably check student performance using forced and free-choice strategies. This could be done by covering graphemic or pictorial information at appropriate times, in order to ascertain the mode most dominantly sampled by a child. Such procedures could insure mastery of graphemics and where pictorials are available predict a balanced usage of the two.

The Publishers

The publishers of instructional reading materials should be aware that children use both graphemic and pictorial visual information in different ways. The degree to which children depend on this information can be partially controlled by assigning duplicative, supportive, decorative or independent usage for information, and by designing it to be used for that assignment. The design can control qualities inherent in the pictures as described in Chapter II.

Publishers could control pictorial usage by some of the following alternatives. Samuels (1974) suggests that publishers avoid putting graphemics and pictorials together on the same or adjoining pages. Pictorials could be used initially by the teacher as motivators or learning aids for word identification and background

development, then put aside while story information is read in graphemic form. Where pictorials are to be included in students' books, Samuels suggests they could precede the story but not be included within the story.

Denburg (1977) suggests pictorial information be controlled if it could misdirect the beginning reader in his attempt to sample information. For example, line drawings without decoration are suggested for use in word identification. Controlled pictorial information containing only duplicative or supportive detail may reduce the effectiveness of pictorial information as motivators but appears to increase identification of words in graphemics (1977).

Richards (1974) suggests the use of sequence in design in beginning reading. He suggests use of drawings deplete of irrelevancies, structured to show similarities, differences and contiguity. Arnheim (1974) suggests degrees of abstraction, from simple to complex, be used in pictorial construction for beginning reading material. He addresses himself to use of graphemics in beginning reading material as carefully controlled sequences to avoid difficult linguistic patterns. Ironically, such control has not been acknowledged as necessary in pictorial usage (Arnheim, 1974). The material in Funny Surprises has not been designed to control irrelevancies or to capitalize on similarities, differences, or contiguity between the pictorials or the graphemics.

The Teacher Educators

The teacher educators who are concerned with the teaching of teachers of reading need to assist teachers in becoming aware of and

monitoring children's use of visual information in beginning reading. To learn more about use of modal information they must emphasize the need of further research in the area. In order for changes to be made in materials, teacher educators could train teachers to adapt what is currently available or create publisher awareness of a need for change.

SUGGESTIONS FOR FURTHER RESEARCH

During the preparation and investigation of this thesis possibilities for further research became evident. Suggestions for some of these are provided below:

1. Rather than limiting an investigation to the degree of the visual information three groups of reading achievers used, a researcher might determine more specific qualitative data regarding modal usage by investigating one reading achievement group. For example, the low reading achievement group to determine their development of usage and integration of information.

2. A stronger research design would evolve from having each reading achievement group read each story in each mode in each form, thereby offering greater internal control and more data on the processing of the stories.

3. The preparation and presentation of visual information which has been designed for use in assigned roles in reading could be developed experimentally. The efficiency of each could be evaluated in terms of usual reading tasks.

4. A measure containing free choice and forced-choice items similar to those used in this study could be developed and validated

in terms of usefulness for diagnostic or remediation purposes.

CONCLUDING STATEMENT

The findings of this study indicated a developmental progression in reading achiever performance using both graphemic and pictorial information. The degree of informational interaction between modes appears to affect the progression through this development. Those who appeared to sample partially or completely from both graphemic and pictorial information also had higher performance scores than those who appeared to sample only from one kind of information. All the readers demonstrated modal dependencies, but for the low readers who sampled best from pictorial information, there appears to be a modal dependence deterring them from developmental progress.

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REFERENCES

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APPENDICES

APPENDIX A

INTER-RATER QUESTIONNAIRE

STORY RATINGS

Oral instructions included:

1. a caution not to take more than one half hour to complete
2. mark any which you do not feel qualified to answer (UQ)
3. comment on any rating of low or very low.

Please rate the following three stories according to their similarities or dissimilarities:

Jump	page 23
Something New	page 35
The New Fish	page 40

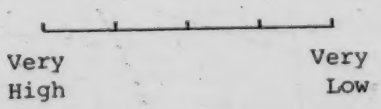
Regular/Modified Mode

I. Typographic Elements

1. Paper quality, color, and weight

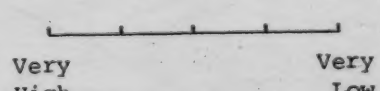
2. (Black and white space) Size of margins, spacing between lines and length of lines

3. Layout of print and picture on the pages

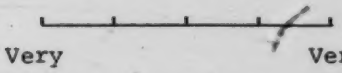


4. Use of upper and lower case print

5. Style, size, color and intensity of type



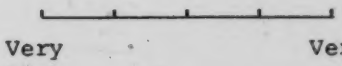
6. Size, style and color of pictures



Very High — Very Low

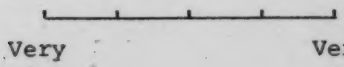
II. Graphic Elements

1. Number of pages



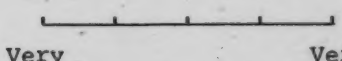
Very High — Very Low

2. Number of lines per page



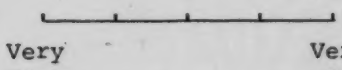
Very High — Very Low

3. Length of lines



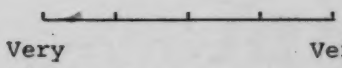
Very High — Very Low

4. Number of words per page



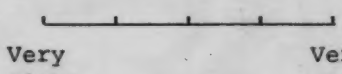
Very High — Very Low

5. Number of pictures per page



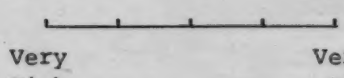
Very High — Very Low

6. Number of word parts (i.e. syllables) per page



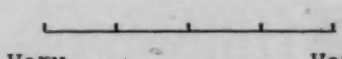
Very High — Very Low

7. Complexity of meaningful vocabulary



Very High — Very Low

8. Complexity of sentences used (i.e. simple, complex, compound)



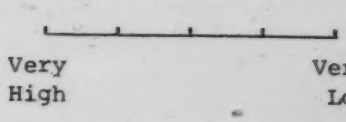
Very High — Very Low

9. Number of main ideas per page (printed)

Very High — Very Low

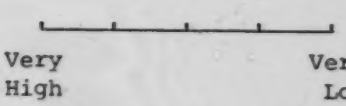
10. Number of main ideas per page (pictured)

11. Complexity of plot



12. Familiarity of theme to beginning readers

13. Overall motivational appeal to beginning readers



Comments: _____

_____

_____

_____

_____

_____

APPENDIX B

PLATE I

THREE STORIES EACH IN REGULAR AND MODIFIED FORMS
OF THE GRAPHEMIC & PICTORIAL MODE

PLATE I

"THE NEW FISH"

REGULAR FORM, GRAPHEMIC & PICTORIAL MODE

PLATE I

"THE NEW FISH"

MODIFIED FORM, GRAPHEMIC & PICTORIAL MODE

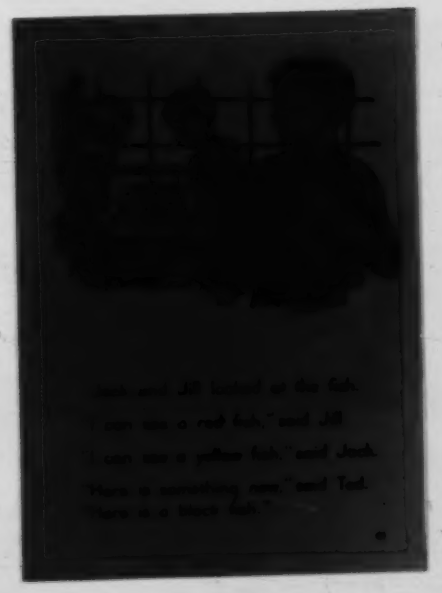


PLATE I

"SOMETHING NEW"

REGULAR FORM, GRAPHEMIC & PICTORIAL MODE

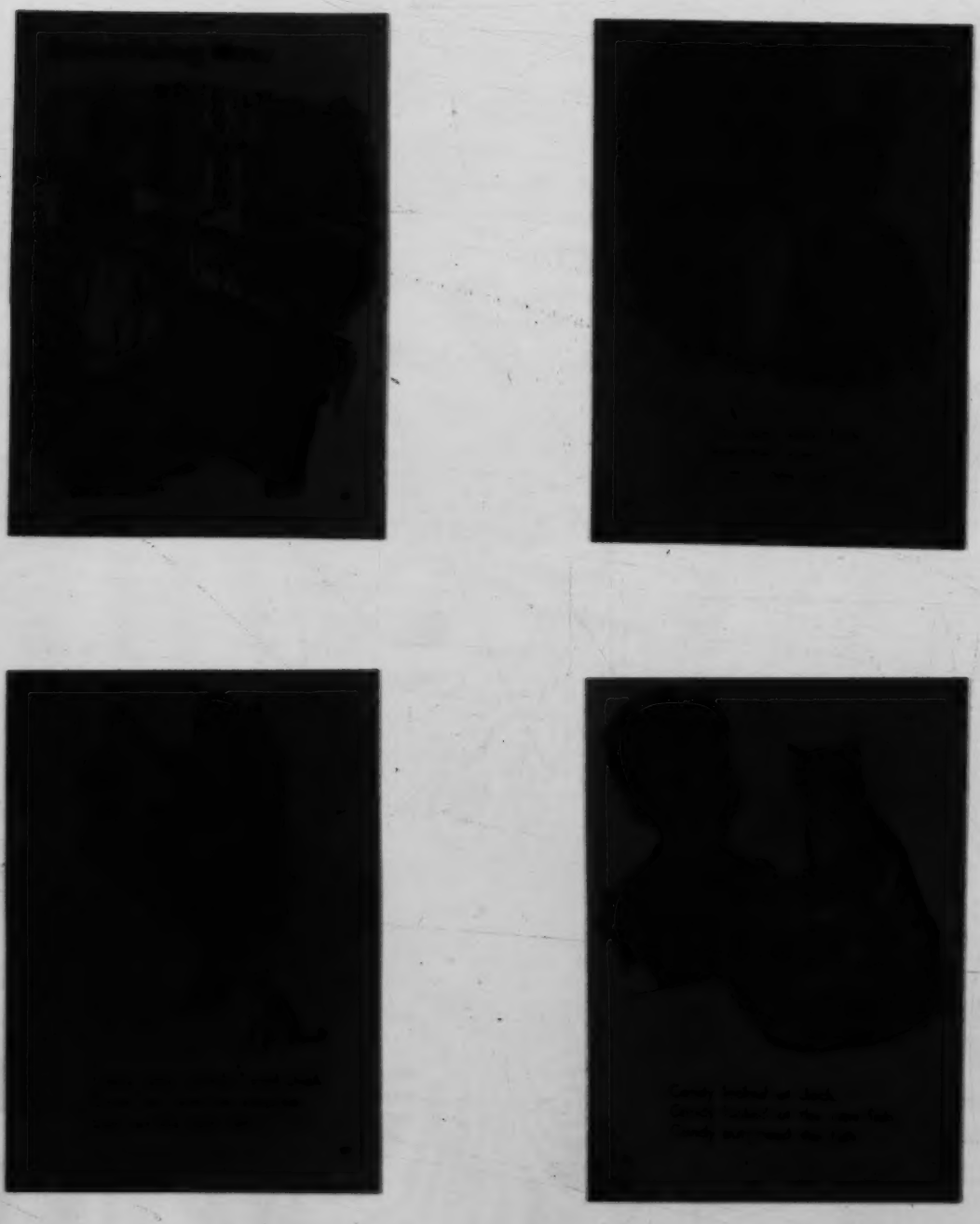


PLATE I

"SOMETHING NEW"

MODIFIED FORM, GRAPHEMIC & PICTORIAL MODE

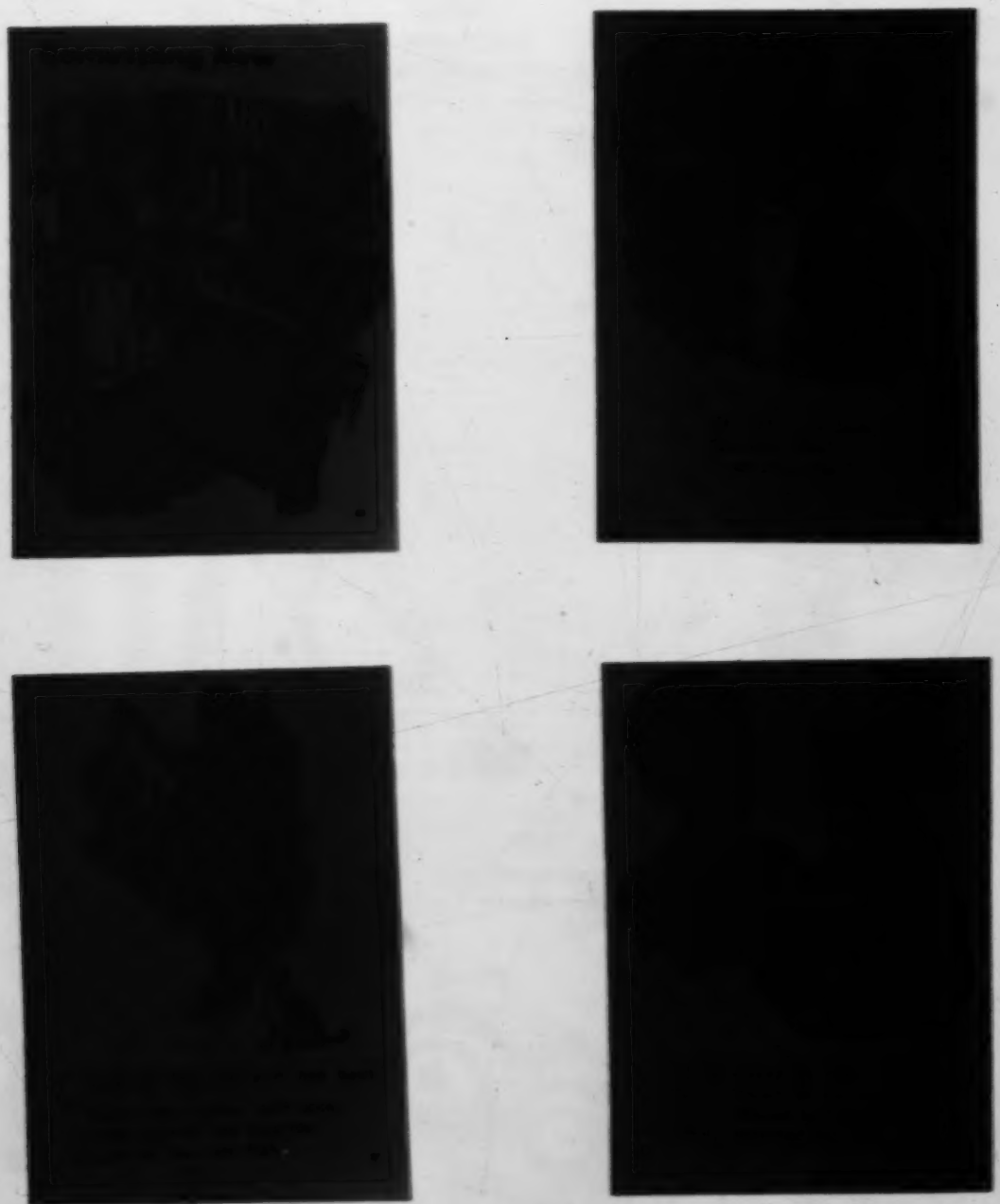


PLATE I

"JUMP"

REGULAR FORM, GRAPHEMIC & PICTORIAL MODE

PLATE I

"JUMP"

MODIFIED FORM, GRAPHEMIC & PICTORIAL MODE

APPENDIX C

PLATE II

MODIFIED FORM OF GRAPHEMICS AND PICTORIALS INCLUDING ALL GRAPHEMIC AND PICTORIAL MODIFICATIONS

PLATE II

GRAPHEMIC MODIFICATIONS
GRAPHEMIC & PICTORIAL MODE

"SOMETHING NEW" (#1,2,3)

#1

#2

"THE NEW FISH"

#3

PLATE II

GRAPHEMIC MODIFICATIONS
GRAPHEMIC & PICTORIAL MODE

"JUMP" (#1,2,3,4)

#1

#2

#3

#4

PLATE II

PICTORIAL MODIFICATIONS
GRAPHEMIC & PICTORIAL MODE

"THE NEW FISH"

ADDITION

DELETION

APPENDIX D

PLATE III

EXAMPLES OF THE PICTORIAL MODE
AND THE GRAPHEMIC MODE

PLATE III

"JUMP"

GRAPHEMIC MODE, REGULAR FORM

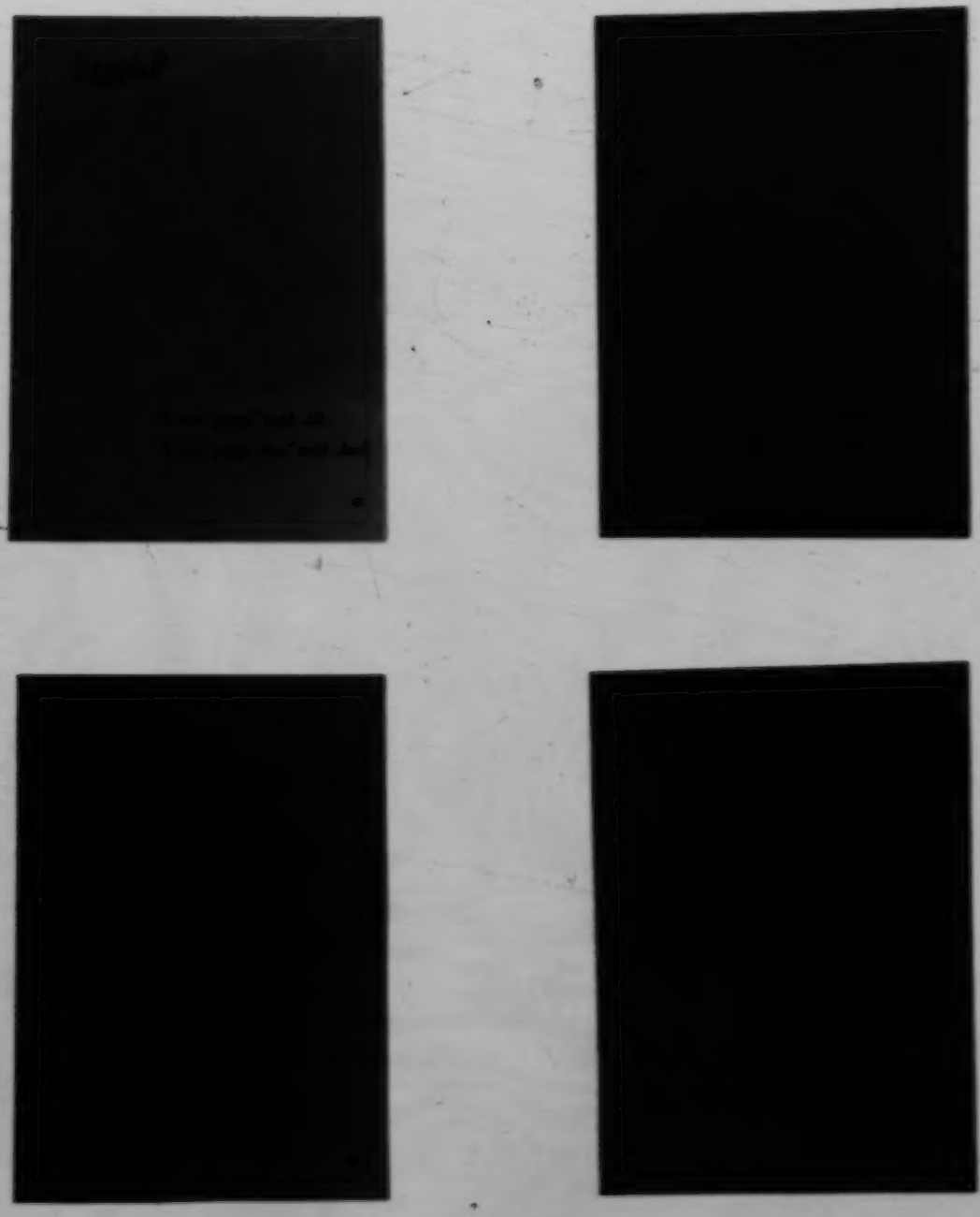


PLATE III

"JUMP"

PICTORIAL MODE, REGULAR FORM

APPENDIX E

RECORD SHEETS

RECORD SHEET

NAME: _____ NO. _____ SEX: MALE / FEMALE

GROUP: I II III REGULAR/ MODIFIED

TREATMENT: a_1 a_2 a_3
b_1 b_2 b_3

SCORE: _____ DATE: _____

PART ONE: JUMP

1. What can Jack and Jill do?

_____

2. Who else can jump?

_____

3. What can Candy do?

_____

4. Who is funny?

_____

_____

PART TWO:

1. Did you like the story? YES NO

2. How much did you like the story? A LOT A LITTLE NOT AT ALL

RECORD SHEET

NAME: _____ NO. _____ SEX: MALE / FEMALE

GROUP: I II III REGULAR/ MODIFIED

TREATMENT: a_1 a_2 a_3
b_1 b_2 b_3

SCORE: _____ DATE: _____

PART ONE: JUMP

1. What can Jack and Jill do?

_____

2. Who else can jump?

_____

3. What can Candy do?

_____

4. Who is funny?

_____

_____

PART TWO:

1. Did you like the story? YES NO

2. How much did you like the story? A LOT A LITTLE NOT AT ALL

3. Did you like the story today better than the story yesterday? YES NO

RECORD SHEET

NAME: _____ NO. _____ SEX: MALE / FEMALE

GROUP: I II III REGULAR/ MODIFIED

TREATMENT: a. a. a.
b. b. b.

SCORE: _____ DATE: _____

PART ONE: JUMP

1. What can Jack and Jill do?

_____

2. Who else can jump?

_____

3. What can Candy do?

_____

4. Who is funny?

_____

_____

PART TWO:

1. Did you like the story? YES NO

2. How much did you like the story? A LOT A LITTLE NOT AT ALL

3. Which story did you like the best, second best, and least of all?

_____ JUMP _____ SOMETHING NEW _____ THE NEW FISH

4. Which kind of story did you like the best, second best, and least of all?

_____ PRINT AND PICTURES ___ PRINT PICTURES

RECORD SHEET

NAME: _____ NO. _____ SEX: MALE / FEMALE

GROUP: I II III REGULAR/ MODIFIED

TREATMENT: a_1 a_2 a_3
b_1 b_2 b_3

SCORE: _____ DATE: _____

PART ONE: SOMETHING NEW

1. What new thing does Jack see?

_____

2. Who comes to see the new fish?

_____

3. What did Candy do?

_____

4. Who surprised Candy?

_____

PART TWO:

1. Did you like the story? YES NO

2. How much did you like the story? A LOT A LITTLE NOT AT ALL

RECORD SHEET

NAME: _____ NO. _____ SEX: MALE / FEMALE

GROUP: I II III REGULAR/ MODIFIED

TREATMENT: a_1 a_2 a_3
b_1 b_2 b_3

SCORE: _____ DATE: _____

PART ONE: SOMETHING NEW

1. What new thing does Jack see?

_____

2. Who comes to see the new fish?

_____

3. What did Candy do?

_____

4. Who surprised Candy?

_____

PART TWO:

1. Did you like the story? YES NO

2. How much did you like the story? A LOT A LITTLE NOT AT ALL

3. Did you like the story today better than the story yesterday? YES NO

RECORD SHEET

NAME: _____ NO. _____ SEX: MALE / FEMALE

GROUP: I II III REGULAR/ MODIFIED

TREATMENT: a_1 a_2 a_3
b_1 b_2 b_3

SCORE: _____ DATE: _____

PART ONE: SOMETHING NEW

1. What new thing does Jack see?

_____

2. Who comes to see the new fish?

_____

3. What did Candy do?

_____

4. Who surprised Candy?

_____

PART TWO:

1. Did you like the story? YES NO

2. How much did you like the story? A LOT A LITTLE NOT AT ALL

3. Which story did you like the best, second best, and least of all?

_____ JUMP _____ SOMETHING NEW _____ THE NEW FISH

4. Which kind of story did you like the best, second best, and least of all?

_____ PRINT AND PICTURES _____ PRINT _____ PICTURES

RECORD SHEET

NAME: _____ NO. _____ SEX: MALE / FEMALE

GROUP: I II III REGULAR/ MODIFIED

TREATMENT: a_1 a_2 a_3
b_1 b_2 b_3

SCORE: _____ DATE: _____

PART ONE: THE NEW FISH

1. Who has something new?

_____

2. What is Ted's fish like?

_____

3. Who comes to see Ted draw?

_____

4. What can Ted draw?

_____

_____

PART TWO:

1. Did you like the story? YES NO

2. How much did you like the story? A LOT A LITTLE NOT AT ALL

RECORD SHEET

NAME: _____ NO. _____ SEX: MALE / FEMALE

GROUP: I II III REGULAR/ MODIFIED

TREATMENT: a_1 a_2 a_3
b_1 b_2 b_3

SCORE: _____ DATE: _____

PART ONE: THE NEW FISH

1. Who has something new?

_____

2. What is Ted's fish like?

_____

3. Who comes to see Ted draw?

_____

4. What can Ted draw?

_____

PART TWO:

1. Did you like the story? YES NO

2. How much did you like the story? A LOT A LITTLE NOT AT ALL

3. Did you like the story today better than the story yesterday? YES NO

RECORD SHEET

NAME: _____ NO. _____ SEX: MALE / FEMALE

GROUP: I II III REGULAR/ MODIFIED

TREATMENT: a_1 a_2 a_3
b_1 b_2 b_3

SCORE: _____ DATE: _____

PART ONE: THE NEW FISH

1. Who has something new?

_____

2. What is Ted's fish like?

_____

3. Who comes to see Ted draw?

_____

4. What can Ted draw?

_____

PART TWO:

1. Did you like the story? YES NO

2. How much did you like the story? A LOT A LITTLE NOT AT ALL

3. Which story did you like the best, second best, and least of all?

_____JUMP _____SOMETHING NEW _____THE NEW FISH

4. Which kind of story did you like the best, second best, and least of all?

_____PRINT AND PICTURES _____PRINT _____PICTURES

APPENDIX F

LESSON PLANS

SCHEDULE

General Orientation

Introduction

Lesson Plan:

"Jump"

"Something New"

"The New Fish"

Preference Questions

General Orientation

"Good afternoon girls and boys. My name is Mrs. Hiebert. _____, your teacher, has permitted me to talk to you for a few minutes about something special we are going to do in the next three days.

You will be coming with me in groups of three to Room ____. Each day all of you will come, but at different times. During each visit we will be reading a story and answering some questions about it.

What I need to know are your names for when you see me next. Starting here (indicate), would you please tell me who you are." When they finish, thank them and continue.

"I would have difficulty remembering all of your names tomorrow, so in case I forget, I'm going to pass around some cards for you to print your names on. When you come to see me, your name will be on the table, to mark your place." Wait until completed and collect cards.

"It's been very enjoyable meeting you boys and girls. Goodbye and I'll see you tomorrow."

Introduction

Hello, do you remember my name? It's Mrs. Hiebert. And you are _____, _____, _____. (Have books, answer sheets, pencils and name cards at each place). I want to begin by telling you I am happy you are here. I said we will be meeting three times—today, tomorrow, and the next day.

Each day we will do similar things. This is what they will be:

I. We will read and/or look at a story.

1. I will tell you who the story is about.
2. I will ask you a question, and you will read a page to answer it.
3. You will write an answer to the question on the answer sheet.

(If you need help writing, spelling, or reading a word, or understanding a picture, quietly raise your hand and I will help you.)

4. You will re-read and/or look at the page as I read it aloud.
5. We will do the same for each of the following pages of the story.
6. Then we will read and/or look at the whole story.

II. You will be asked to answer two or three questions about your feelings towards the story.

CHECK SCHEDULE TO INSURE PROPER MATERIALS HAVE BEEN DISTRIBUTED

9:00	1R A_1B_1	3M A_3B_1	2R A_2B_1
9:30	1M A_1B_1	3R A_3B_1	2M A_2B_1
10:00	2R A_3B_2	2M A_1B_3	3R A_1B_2
10:30	3M A_2B_3	1R A_2B_2	1M A_3B_3
11:00	3R A_2B_3	1M A_2B_2	1R A_3B_3
11:30	2M A_3B_2	2R A_1B_3	3M A_1B_2

Group

1 = High
2 = Medium
3 = Low

Form

R = Regular
M = Modified

Mode

A_1 = print + picture
A_2 = print
A_3 = picture

Story

B_1 = "Jump"
B_2 = "Something New"
B_3 = "The New Fish"

"Now let's turn to our first story _____."

Lesson Plan

Story Session: #1

Treatment: A_1B_1

Story: Jump

Mode: Print + Pictures

Background:

"Today we are going to look at pictures and read a story about a girl named Jill, a boy named Jack, a dog named Sandy, and a cat named Candy. It is called Jump."

(Point to the chart) Say, "Here is Jill, here is Jack, here is Sandy, and here is Candy. Now, can you tell me who this is?" Point to each character, and wait for the response.

"The story begins with Jack and Jill playing a game. They are at school and it is recess time. Let's look at the pictures and read the story."

Reading the Story:

Page 23

"Let's look at the pictures and read page 23 to find out what Jack and Jill can do. When you have found the answer write it beside number one on the answer sheet." When children have completed their responses, ask "What can Jack and Jill do?" Ask one child to read his answer aloud. If it is correct, say "Thank you." If it is incorrect say, "No, they can jump rope or skip it." "Now let's look at the picture and read the story together. You read it silently while I read it aloud."

Follow the same sequence with the following pages

Page 24

Who else can jump? (Sandy)

Page 25

What can Candy do? (jump)

Page 26

Who is funny? (Candy)

Re-Reading the Story:

"Now let's read the whole story. You follow along silently, as I read the story aloud. Good!"

"Please close your books and listen to what I'm going to ask you to do next."

Lesson Plan

Story Session: #2

Treatment: A_2B_1

Story: Jump

Mode: Print

Background:

"Today we are going to read a story about a girl named Jill, a boy named Jack, a dog named Sandy, and a cat named Candy. It is called Jump."

(Point to the chart) Say, "Here is Jill, here is Jack, here is Sandy, and here is Candy. Now, can you tell me who this is?" Point to each character, and wait for the response.

"This story begins with Jack and Jill playing a game. They are at school and it is recess time. Let's read the story."

Reading the Story:

Page 23

"Let's read the page to find out what Jack and Jill can do. When you have found the answer write it beside number one on the answer sheet." When children have completed their responses, ask "What can Jack and Jill do?" Ask one child to read his answer aloud. If it is correct, say "Thank you." If it is incorrect say, "No, they can jump the rope or skip it." "Now, let's read the page together. You read it silently while I read it aloud."

Follow the same sequence with the following pages.

Page 24

Who else can jump? (Sandy)

Page 25

What can Candy do? (jump)

Page 26

Who is funny? (Candy)

Re-reading the Story:

"Now let's read the whole story. You follow along silently, as I read the story aloud. Good!"

"Please close your books and listen to what I'm going to ask you to do next."

Lesson Plan

Story Session: #3

Treatment: A_3B_1

Story: Jump

Mode: Pictures

Background:

"Today we are going to look at a story about a girl named Jill, a boy named Jack, a dog named Sandy, and a cat named Candy. It is called Jump."

(Point to the chart) Say, "Here is Jill, here is Jack, here is Sandy, and here is Candy. Now, can you tell me who this is?" Point to each character, and wait for a response.

"This story begins with Jack and Jill playing a game. They are at school and it is recess time. Let's look at the story."

Reading the Story:

Page 23

"Let's look at the picture and find out what Jack and Jill can do. When you have found the answer write it beside number one on the answer sheet." When children have completed their responses, ask "What can Jack and Jill do?" Ask one child to read his answer aloud. If it is correct, say, "Thank you." If it is incorrect say, "No, they can jump rope or skip it." "Now, let's look at the page together. You look at the picture silently, while I tell the story."

Follow the same sequence with the following pages.

Page 24

Who else can jump? (Sandy)

Page 25

What can Candy do? (jump)

Page 26

Who is funny? (Candy)

Re-reading the Story

"Now let's read the whole story. You follow along silently, as I read the story aloud. Good!"

"Please close your books and listen to what I'm going to ask you to do next."

Lesson Plan

Story Session: #1

Treatment: A_1B_2

Story: Something New

Mode: Print + Pictures

Background:

"Today we are going to look at pictures and read a story about a boy named Jack, his cat named Candy, and a fish. It is called Something New."

(Point to the chart) Say, "Here is Jack, here is Candy, and here is the fish. Now, can you tell me who this is?" Point to each character, and wait for the response.

"This story begins with Jack's mother giving him a small bag. She has been shopping and bought something for Jack. Let's look at the pictures and read the story."

Reading the Story:

Page 36

"Let's look at the pictures and read page 36 to find out what new thing Jack sees in the bag. When you have found the answer write it beside number one on the answer sheet." When the children have completed their responses, ask "What new thing does Jack see?" Ask one child to read his answer aloud. If it is correct, say "Thank you." If it is incorrect say, "No, Jack sees a fish." Then say, "Now let's look at the picture and read the story together. (Allow time to look at the picture.) You read it silently while I read it aloud."

Follow the same sequence with the following pages.

Page 37

Who comes to see the new fish? (Candy)

Page 38

What did Candy do? (surprises or tries to get the fish)

Page 39

Who surprised Candy. (the fish)

Re-reading the Story:

"Now let's read the whole story. You follow along silently, as I read the story aloud. Good!"

"Please close your books and listen to what I'm going to ask you to do next."

Lesson Plan

Story Session: #2

Treatment: A_2B_2

Story: Something New

Mode: Print

Background:

"Today we are going to read a story about a boy named Jack, his cat named Candy, and a fish. It is called Something New."

(Point to the chart.) Say, "Here is Jack, here is Candy, and here is the fish. Now, can you tell me who this is?" Point to each character, and wait for the response.

"This story begins with Jack's mother giving him a small bag. She has been shopping and bought something for Jack. Let's read the story."

Reading the Story:

Page 36

"Let's read the page to find out what new thing Jack sees in the bag. When you have found the answer write it beside number one on the answer sheet." When the children have completed their responses, ask "What new thing does Jack see?" Ask one child to read his answer aloud. If it is correct, say "Thank you." If it is incorrect say, "No, Jack sees a fish." Then say, "Now, let's read the story together. You read it silently while I read it aloud."

Follow the same sequence with the following pages.

Page 37

Who comes to see the new fish? (Candy)

Page 38

What did Candy do? (surprises or tries to get the fish)

Page 39

Who surprised Candy? (the fish)

Re-reading the Story:

"Now let's read the whole story. You follow along silently, as I read the story aloud. Good!"

"Please close your books and listen to what I'm going to ask you to do next."

Lesson Plan

Story Session: #3

Treatment: A_3B_2

Story: Something New

Mode: Pictures

Background:

"Today we are going to look at a story about a boy named Jack, his cat named Candy, and a fish. It is called Something New."

(Point to the chart.) Say, "Here is Jack, here is Candy, and here is the fish. Now, can you tell me who this is?" Point to each character, and wait for the response.

"This story begins with Jack's mother giving him a small bag. She has been shopping and bought something for Jack. Let's look at the story."

Reading the Story:

Page 36

"Let's look at the picture to find what new thing Jack sees in the bag. When you have found the answer write it beside number one on your answer sheet." When the children have completed their responses, ask "What new thing does Jack see?" Ask one child to read his answer aloud. If it is correct, say "Thank you." If it is incorrect say, "No, Jack sees a fish." Then say, "Now let's look at the page together. You look at the picture silently while I tell the story."

Follow the same sequence with the following pages.

Page 37

Who comes to see the new fish? (Candy)

Page 38

What did Candy do? (surprises or tries to get the fish)

Page 39

Who surprised Candy? (the fish)

Re-reading the Story:

"Now let's read the whole story. You follow along silently, as I read the story aloud. Good!"

"Please close your books and listen to what I'm going to ask you to do next."

Lesson Plan

Story Session: #1

Treatment: A_1B_3

Story: The New Fish

Mode: Print + Pictures

Background:

"Today we are going to look at pictures and read a story about two boys, Jack and Ted, and a girl named Jill. It is called The New Fish."

(Point to the chart.) Say, "Here is Jack, here is Ted, here is Jill, and here is a new fish. Now, can you tell me who this is?" Point to each character, and wait for responses.

"This story takes place in school. The children are studying animals that live in water, and have set up an aquarium with fish in it. Let's look at the pictures and read the story."

Reading the Story:

Page 41

"Let's look at the pictures and read page 41 to find out who has something new. When you have found the answer write it beside number one on the answer sheet." When the children have completed their responses, ask "Who has something new?" If it is correct, say "Thank you." If it is incorrect say, "No, Ted has something new." "Now let's look at the picture and read the story together. (Allow time to look at the picture.) You read it silently while I read it aloud."

Follow the same sequence with the following pages.

Page 42

What is Ted's fish like? (black, funny)

Page 43

Who comes to see Ted draw? (Jack, Jill)

Page 43 again

What can Ted draw? (pet, turtle)

Re-reading the Story:

"Now, let's read the whole story. You follow along silently, as I read the story aloud. Good!"

"Please close your books and listen to what I'm going to ask you to do next."

Lesson Plan

Story Session: #2

Treatment: A_3B_3

Story: The New Fish

Mode: Print

Background:

"Today we are going to read a story about two boys, Jack and Ted, and a girl named Jill. It is called The New Fish."

(Point to the chart.) Say, "Here is Jack, here is Ted, and here is Jill, and here is a new fish. Now, can you tell me who this is?" Point to each character, and wait for response.

"This story takes place in school. The children are studying animals that live in the water, and have set up an aquarium with fish in it. Let's read the story."

Reading the Story:

Page 41

"Let's read the page to find out who has something new. When you have found the answer write it beside number one on your record sheet." When children have completed their responses, ask "Who has something new?" Ask one child to read his answer aloud. If it is correct, say "Thank you." If it is incorrect say, "No, Ted has something new." "Now let's read the page together. You read it silently while I read it aloud."

Follow the same sequence with the following pages.

Page 42

What is Ted's fish like? (black, funny)

Page 43

Who comes to see Ted draw? (Jack, Jill)

Page 43 again

What can Ted draw?' (pet, turtle)

Re-reading the Story:

"Now let's read the whole story. You follow along silently, as I read the story aloud. Good!"

"Please close your books and listen to what I'm going to ask you to do next."

Lesson Plan

Story Session: #3

Treatment: A_3B_3

Story: The New Fish

Mode: Pictures

Background:

"Today we are going to look at a story about two boys, Jack and Ted, and a girl named Jill. It is called The New Fish.

(Point to the chart.) Say, "Here is Jack, here is Ted, here is Jill, and here is a new fish. Now, can you tell me who this is?" Point to each character, and wait for response.

"This story takes place in school. The children are studying animals that live in the water, and have set up an aquarium with fish in it. Let's look at the story."

Reading the Story:

Page 41

"Let's look at page 41 to find out who has something new. When you have found the answer write it beside number one on the answer sheet." When the children have completed their responses, ask "Who has something new?" Ask one child to read his answer aloud. If it is correct, say "Thank you." If it is incorrect say, "No, Ted has something new." "Now let's look at the page together. You look at the picture silently, while I tell the story."

Follow the same sequence with the following pages.

Page 42

What is Ted's fish like? (black, funny)

Page 43

Who comes to see Ted draw? (Jack, Jill)

Page 43 again

What can Ted draw? (pet, turtle)

Re-reading the Story:

"Now let's read the whole story. You follow along silently, as I read the story aloud. Good!"

"Please close your books and listen to what I'm going to ask you to do next."

Preference Questions

"Think about the story/stories we have read to answer the next questions. They are under Part Two on your answer sheets." (Indicate appropriate place.) "Please think about your answer and respond with the way you really feel about the story/stories."

Read each pair of questions and answers twice. Check that each child is aware of where they are and what is expected.

Questions for Session #One

1. Did you like the story? Yes No
2. How much did you like the story? A Lot A Little Not at all

Questions for Session #Two

1. Did you like the story? Yes No
2. How much did you like the story? A Lot A Little Not at all

- In preparation for #3 briefly show the two stories.

3. Did you like the story today better than the story yesterday? Yes No

Questions for Session #Three

1. Did you like the story? Yes No
2. How much did you like the story? A Lot A Little Not at all

- In preparation for #3 and #4 briefly show the three stories.

3. Which story did you like the best, second best, and least of all? Jump / Something New / The New Fish
4. What kind of story did you like best, second best and least of all? Pictures and print / Print / Pictures

(Check to see that children understand the directions or if they require assistance.)

"Would you please pass your answer sheets to me and then sit very quietly. Thank you very much boys and girls."